Meridian 1

# Equipment Identification

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# Revision history

**January 2002**

Standard 18.00. This document is up-issued to support Meridian 1 Release 25.40 systems. This document is up-issued to include Call Processor Pentium (CP PII ) and Fibre Network Fabric (FNF) for Option 81C.

**April 2000**

Standard 17.00. This is a global document and is up-issued for X11 Release 25.0x. Document changes include removal of: redundant content; references to equipment types except Options 11C, 51C, 61C, and 81C; and references to previous software releases.

**June 1999**

Standard, release 16.00. This document is reissued to include information on the NT5D03 Call Processor Card. Changes to technical content are noted by revision bars in the margins.

**October 1997**

Standard, release 15.00. This document is reissued to include information on the NT5D10 Call Processor Card, the NT5D61 Input/Output Disk Unit with CD-ROM (IODU/C), the NTAG36 Meridian Integrated RAN Card (MIRAN), the NT5D51 Meridian Integrated Conference Bridge (MICB) card, the NT8D41BA Quad Serial Data Interface Paddle Board, and the NT5D60AA XCMC Card. Changes are noted by revision bars in the margins.

**August 1996**

Standard, release 14.00. This document is reissued to include new and updated information. Changes to technical content are noted by revision bars in the margins.

**August 1996**

Standard, release 13.00. This document is reissued for X11 Release 22 to include new and updated information on equipment. Changes to technical content are noted by revision bars in the margins.

**December 1995**

Standard, release 12.00. This document is reissued to include information on the NT9D19 Call Processor Card, copy edits, and updated index that includes international items.

**July 1995**

Standard, release 11.00. This document is reissued to include information on Meridian 1 Option 81C and international text. Changes to technical content are noted by revision bars in the margins.

An updated index was not available at the time of publication and therefore, the index included herein does not contain references to international items. This deficiency will be corrected in the next standard edition of this document.

**December 1994**

Standard release 10.00. This document is reissued for technical content changes.

**December 1994**

Standard, release 9.00. This document is reissued to include information on the Small Systems Multi Drive Unit (SMDU), Meridian 1 Option 51C, and edits. Changes to technical content are noted by revision bars in the margins.

**April 1994**

Standard, release 8.00. This document is reissued to include information on Option 61C. Changes to technical content are noted by revision bars in the margins.

**August 1993**

Standard, release 7.00. Changes to technical content are noted by revision bars in the margins.

**April 1993**

Standard, release 6.00. Changes to technical content are noted by revision bars in the margins.

**December 1992**

Standard, release 5.00. This document is reissued to include information on system Option 81, equipment required for compatibility with X11 release 18, and Product Bulletins 91062 (November 1991), 92027 (July 1992), and 92039 (October 1992). Due to the extent of the changes, revision bars are omitted.

**December 1991**

Standard, release 4.00. This document is reissued to include technical content updates. Due to the extent of the changes, revision bars are omitted.

**December 1990**

This document is reissued to include updates for X11 release 16. Changes are indicated by revision marks in the margins.

# Contents

About this document . . . . . 9
General information . . . . . 11
System modules . . . . . 15
Power and cooling equipment . . . . . 25
Common equipment cards . . . . . 35
Peripheral equipment cards . . . . . 53
Station equipment . . . . . 143
Cables . . . . . 153
Miscellaneous equipment . . . . . 197
List of terms . . . . . 205
Index . . . . . 211

# About this document

This document applies to Meridian 1 Internet Enabled systems.

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

This document identifies equipment that can be ordered and used with Meridian 1 system Options 51C, 61C, and 81C. The equipment listed in this document is available in the USA and internationally.

## Who should use this document

This document is intended for individuals responsible for identifying equipment.

## How this document is organized

As appropriate, the purpose, quantity required, and system compatibility is given.

# General information

## Content list

The following are the topics in this section:

Reference list . . . . . 11
Feature description . . . . . 12
Equipment requirements . . . . . 12
Application module equipment . . . . . 12
Conversion and expansion packages . . . . . 12
Systems and generics . . . . . 12
Equipment availability . . . . . 14
Special features . . . . . 14
Electromagnetic interference . . . . . 14
Software packages . . . . . 14

## Reference list

The following are the references in this section:

- *System Engineering* (553-3001-151)
- *Power Engineering* (553-3001-152)
- *Hardware Upgrade Procedures* (553-3001-258)
- *Features and Services* (553-3001-306)

## Feature description

This document identifies equipment of the Meridian 1 Integrated Services Network that can be ordered individually. The items are described in terms of purpose, quantity required, system hardware (system type), and software generic compatibility, as appropriate.

## Equipment requirements

The system option that best meets individual requirements is determined by the following factors:

- number and type of terminal devices required
- number and type of trunks required
- traffic requirements for lines, trunks, and consoles
- special features required
- growth forecast in terms of ports and features

Refer to *System Engineering* (553-3001-151) and *Power Engineering* (553-3001-152) for guidelines on system requirements. Consult your Nortel Networks representative and use a configuration tool, such as Autoquote or Meridian Configurator, to fully engineer a system.

## Application module equipment

For information on application module equipment (for example, the application modules, circuit cards, and cables used for Meridian Link), see the specific documentation for the application.

## Conversion and expansion packages

Software conversion packages and hardware upgrade packages are available to expand system capabilities. For information on these packages and procedures for performing conversions and upgrades, see the *Hardware Upgrade Procedures* (553-3001-258).

## Systems and generics

Various Meridian 1 systems are equipped with software generics according to the customer's requirements and equipment compatibility. Descriptions of items include "System Hardware" and "Software Generic" headings to indicate which system and software generic the item can be used with.

When the term “All” is used under the “System Hardware” heading, the item can be used with all systems. When the term “All” is used under the “Software Generic” heading, the item can be used with all generics. When hardware/software restrictions apply, the hardware and generics with which that item is compatible are listed. If “All” appears under both headings, no system/generic restrictions apply.

The software is ordered by a three-digit or four-digit code, where the first one or two digits designate the system hardware and the last two digits designate the software generic. The following software versions are available, where X is the system type per Table 1 on page 14:

- X11 North American Business Features
- X37 Hotel/Motel Features
- X08 International Business Features

**Table 1**
**Software generic/system hardware cross-reference**

| Generic | System Hardware |
|---|---|
| 2411 | Option 51C with NT5D14 Call Processor |
| 2811 | Option 51C with NT5D03 Call Processor |
| 2511 | Option 61C with NT5D10 Call Processor |
| 2911 | Option 61C with NT5D03 Call Processor |
| xx11 | Option 81C with A0810496 Call Processor |
| xx11 | Option 81C with NT4N64 Call Processor |

## Equipment availability

The equipment listed in this document is available through Nortel Networks and Nortel Networks distributors. Equipment may be discontinued at any time. Contact a Nortel Networks representative for information on equipment availability.

## Special features

Special features are purchased as options to a basic system. These features may consist of software, hardware, or both. Special features that include hardware (such as Call Detail Recording and Remote Peripheral Equipment) are described in separate Nortel Networks technical publications (NTPs). Those documents include the equipment requirements.

## Electromagnetic interference

All cabinets are available either with or without suppression of electromagnetic interference (EMI).

## Software packages

A variety of software packages provide basic and advanced system features. For information on software features, see *Features and Services* (553-3001-306).

# System modules

## Content list

The following are the topics in this section:

Reference list . . . . . 15
Feature description . . . . . 15
NT4N41 cPCI® Core/Network Module . . . . . 16
NT5D21 Core/Network Module . . . . . 17
NT8D35 Network Module . . . . . 19
NT8D37 Intelligent Peripheral Equipment Module . . . . . 20
NT8D49 Column Spacer Kit . . . . . 21
Card cage assemblies . . . . . 22
Pedestal and components . . . . . 23
Top cap . . . . . 23

## Reference list

The following are the references in this section:

- *System Engineering* (553-3001-151)
- *Circuit Card: Installation and Testing* (553-3001-211)

## Feature description

A Universal Equipment Module (UEM) is a self-contained unit that, when equipped, houses a cardcage and backplane, power and ground cabling, power units, I/O panels, circuit cards, and cables. When the cardcage is installed, the function of the UEM is established (e.g., it becomes a CPU/Network Module) and the module is no longer “universal.”

Without covers, each module is approximately 81.3 cm wide by 52.1 cm deep by 43.2 cm high (32 in. by 20.5 in. by 17 in.). With the front and rear covers in place, the UEM is 55.9 cm (22 in.) deep. A module weighs approximately 21.8 kg (48 lb) before circuit cards are installed.

The cards that can be used in each module are listed in this document. For specific card slot assignments, see *Circuit Card: Installation and Testing* (553-3001-211) for listings by card or *System Engineering* (553-3001-151) for listings by module.

## NT4N41 cPCI® Core/Network Module

**System hardware**—Option 81C(minimum software Release 24)

**Purpose**—Houses a NT4N46 AA card cage that contains both the main processor cards in a Core shelf, and the first Network group. The CP PII Core/Net card cage contains two distinct backplanes:

- The **Core** side of the CP PII card cage uses a cPCI backplane. This backplane is a high speed industry standard that allows expansion and replacement with "off the shelf" components.
- The **Network** side of the CP PII Core/Net card cage is a standard Meridian 1 backplane

The common equipment cards are listed below.

Power requirements:

- AC systems: NT5D21AA Module; NT8D29 CE Power Supply
- DC systems: NT5D21AC Module; NT6D41 CE Power Supply

The Core shelf contains a 3PE Termination Panel on the back of each CP PII Core/Net card cage that provids connections for the cCNI to 3PE cables and 17 card slots that support:

- cPCI Multi-Media Disk Unit (MMDU)
- Call Processor Pentium II® (CP PII)
- System Utility (Sys Util)
- cPCI® Core to Network Interface (cCNI)

- System Utility Transition card (Sys Util Trans)
- cPCI Core to Network Interface Transition card (cCNI Trans)

The first Network group contains 12 card slots that support:

- 3-Port Extender (3PE) card
- Fiber Junctor Interface (FIJI) card
- Conference/TDS card
- D-Channel Interface (DCHI) card
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Peripheral Signaling card
- Network and/or Superloop Network card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card

**Quantity**—Two for each Option 81C system.

## NT5D21 Core/Network Module

**System hardware**—Option 51C/61C(minimum software Release 21)

**Purpose**—Houses common control and network cards, the disk drive unit, and the other common equipment cards listed below.

Power requirements:

- AC systems: NT5D21AA Module; NT8D29 CE Power Supply
- DC systems: NT5D21AC Module; NT6D41 CE Power Supply

This module contains 18 card slots that support:

- 3-Port Extender (3PE) card
- Call Processor (CP) card
- Hybrid Bus Terminators
- Input/Output Disk Unit with CD-ROM (IODU/C)
- Core to Network Interface 3 card (CNI-3)

- Conference/TDS card
- D-Channel Interface (DCHI) card
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Peripheral Signaling card
- Network and/or Superloop Network card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card

***Note:*** Hybrid Bus Terminators are installed between slots 0 and 1, slots 1 and 2, and slots 11 and 12.

**Quantity**—Two per system for Options 61C and , one per system for Option 51C

# NT8D35 Network Module

**System hardware**—Option 51C/61C/81C

**Purpose**—Houses network cards in Option 81C. Can also be used as a PRI and/or DTI expansion module with all of the system options listed above.

Power requirements:

- AC systems: NT8D35AA or NT8D35BA Module; NT8D29 CE Power Supply
- DC systems: NT8D35DC or NT8D35EA Module; NT6D41 CE Power Supply

This module contains 15 card slots that support:

- 3-Port Extender (3PE) card
- Conference/TDS card
- Fiber Network Interface (FIJI)
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Network and/or Superloop Network card
- Peripheral Signaling card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card
- Clock Controller card for Option 81C only (must be installed in slot 13)
- Serial Data Interface (SDI) card

***Note:*** BTUs are installed between slots 11 and 12, and slots 12 and 13 in NT8D35AA and NT8D35DC Network Modules. The NT8D35BA and NT8D35EA do not use BTUs.

**Quantity**—As required; see *System Engineering* (553-3001-151)

# NT8D37 Intelligent Peripheral Equipment Module

**System hardware**—Option 51C/61C/81C

**Purpose**—Houses one Controller card (NT8D01BC Controller-4 or NT8D01AD Controller-2) and up to 16 IPE cards.

> ***Note:*** In vintages BA and EC, all of the IPE card slots are fully cabled for 24 pairs. In vintages AA and DC, only slots 0, 4, 8, and 12 are cabled for 24 pairs.

Power requirements:

- AC systems: NT8D37AA or BA; NT8D06 PE Power Supply
- DC systems: NT8D37DC or EC; NT6D40 PE Power Supply

> ***Note:*** When 500/2500 telephones are equipped, a ringing generator (NT8D21 for AC systems or NT6D42 for DC systems) is required.

This module contains 16 IPE card slots (in addition to the slot for the Controller card) that support the following cards:

- Analog Line card
- Analog Message Waiting Line card
- Data Access card (DAC)
- Digital Line card
- Digitone Receiver (DTR) card
- E&M Trunk card
- S/T Interface Line card (SILC)
- U Interface Line card (UILC)
- Universal Trunk card

**Quantity**—As required; see *System Engineering* (553-3001-151)

# NT8D49 Column Spacer Kit

**System hardware**—Option 51C/61C/81C

**Purpose**—Bolts modules together for side-by-side expansion and maintains shielding against electromagnetic interference (EMI) and radio-frequency interference (RFI). The spacer kit includes:

- eight bushings
- expansion spacer
- RF gasketing

This module contains 19 card slots that support:

- 3-Port Extender (3PE) card
- Call Processor (CP) card
- Clock Controller card (CC)
- Core Bus Terminator (CBT) card
- Core Multi Drive Unit (CMDU)
- Core to Network Interface (CNI) card
- Input/Output Disk Unit with CD-ROM (IODU/C)
- I/O Processor (IOP) card
- Conference/TDS card
- D-channel Interface (DCHI) card
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Peripheral Signaling card
- Network and/or Superloop Network card
- DTR card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card
- Serial Data Interface (SDI) card

***Note:*** BTUs are installed between slots 0 and 1, and slots 1 and 2.

**Quantity**—Two per system

## Card cage assemblies

**Purpose**—Consists of a sheet metal case and an associated backplane. Provides the physical framework that houses the circuit cards and power supplies within the UEM. Card cage assemblies and their corresponding modules are listed in Table 2 on page 22.

**Table 2**
**Card cage assemblies**

| Card cage assemblies | Corresponding module |
|---|---|
| NT5D2101 | NT5D21 Core/Network Module |
| NT8D3503 | NT8D35 Network Module |
| NT8D3703 | NT8D37 IPE Module |

## Pedestal and components

**System hardware**—All

**Purpose**—The base for each column. Approximately 81.3 cm wide by 66 cm deep by 25.4 cm high (32 in. by 26 in. by 10 in.) and 13.6 kg (30 lb) empty. Leveling feet are provided for up to four tiers; a caster option is available for up to two tiers.

There are two versions of the pedestal:

- NT8D27BB for AC power
- NT7D09CA for DC power

The NT8D27BB and NT7D09CA Pedestals house the following field-replaceable assemblies:

- air filter P0699798
- air grill P0699797
- blower unit NT8D52AB for AC power
  NT8D52DD for DC power
- leveling foot A0318207
- PDU NT8D53CA for AC power
  NT7D67CB for DC power
- system monitor NT8D22

***Note:*** Conduit is not required with the NT7D67CB PDU.

## Top cap

**System hardware**—All

**Purpose**—Mounts on the highest module of each column. Approximately 81.3 cm wide by 55.9 cm deep by 10.2 cm high (32 in. by 22 in. by 4 in.) and 3.6 kg (8 lb). Consists of front and rear air exhaust grills and thermal sensors. There are two versions of the top cap:

- NT7D00AA for AC power
- NT7D00BA for DC power

# Power and cooling equipment

## Content list

The following are the topics in this section:

Reference list . . . . . 26
A0321130 Fan Unit . . . . . 27
A0355200 Power Failure Transfer Unit . . . . . 27
A0367916 Power Supply –48V . . . . . 27
MFA150 Modular Power System . . . . . 27
MPP600 Modular Power Plant . . . . . 28
NT6D40 PE Power Supply DC . . . . . 29
NT6D41 CE Power Supply DC . . . . . 29
NT6D42 Ringing Generator DC . . . . . 29
NT7D67CB Power Distribution Unit DC . . . . . 30
NT8D06AB PE Power Supply AC . . . . . 30
NT8D21 Ringing Generator AC . . . . . 30
NT8D22 System Monitor . . . . . 31
NT8D29AB CE Power Supply AC . . . . . 31
NT8D46AC Thermostat Harness . . . . . 31
NT8D46AM Air Probe Harness AC . . . . . 32
NT8D46DC Air Probe Harness DC . . . . . 32
NT8D52AB Pedestal Blower Unit AC . . . . . 32
NT8D52DD Pedestal Blower Unit DC . . . . . 32
NT8D53CA Power Distribution Unit AC . . . . . 33

NT8D53AD Power Distribution Unit . . . . . 33
NT8D56AA CE Module Power Distribution Unit . . . . . 33
NT8D56AC CE/PE Module Power Distribution Unit . . . . . 33
NT8D57AA PE Module Power Distribution Unit . . . . . 34
QBL12 Battery Distribution Box . . . . . 34
QBL15 Power Distribution Box . . . . . 34

## Reference list

The following are the references in this section:

- *MPP600 Modular Power Plant: Description, installation, operation and maintenance manual* (167-9021-105)

## *5*A0355200 Power Failure Transfer Unit

**System hardware**—All

**Purpose**—Provides an interface between CO lines, the Meridian 1, and 500/2500 telephones (rotary dial and push-button). Allows eight telephones to be connected directly to the CO lines in the event of a power failure or malfunction. The PFTU is invisible to the Meridian 1 and CO lines during normal operations.

Approximately 12.1 cm wide by 34.3 cm long by 4.1 cm high (4.75 in. by 13.5 in. by 3.5 in.). The wall-mount unit connects to the main distribution frame and the Meridian 1 with two 25-pair cables.

Requires approximately 200 mA of –48 V DC power. In DC-powered systems, the PFTU is powered from a spare output on the power distribution panel in the power system. In AC-powered systems, the PFTU is powered by an AO367916 power supply.

**Quantity**—One per every eight bypass/transfer lines required in the system

## A0367916 Power Supply –48V

**System hardware**—All (AC-powered systems)

**Purpose**—A wall-mount unit that powers the PFTU in AC-powered systems. Converts 120 V AC (nominal) to –48 V DC (nominal) with a 1.25-amp output. Can also be used to power other auxiliary devices that require –48V power.

**Quantity**—One per every six PFTUs

## MFA150 Modular Power System

**System hardware**—Option 51C/61C/81C (DC-powered systems)

**Purpose**—Replaces the rectifier/rack assembly that includes the NT6D52 Rectifier and QBL15 Power Distribution Unit.

The MFA150 is a modular, front-access power system with a positive ground and –48 V DC output capacity of 150 amps, provided in 25-amp increments using plug-in NT5C06 rectifier modules. The MFA150 is suitable for any system with power requirements of less than 150 amps.

The ordering codes for the complete power plant are NT5C90EF and NT5C90EG. Each of these configurations is a complete power bay with an NT6C14GB Control and Distribution Panel mounted on an NT6C40DC Seismic Rack.

- NT5C90EF is a single MPS75 shelf, with a capacity of 75 amps
- NT5C90EG is a dual-shelf configuration, with a capacity of 150 amps

The MFA150 power system requires one 50-amp power feed per shelf.

**Quantity**—One MFA150 is required per DC system (configured with one to six NT5C06 rectifiers, as required by system power consumption), installed in one or two MPS75 shelves.

## MPP600 Modular Power Plant

**System hardware**—Option 51C/61C/81C (DC-powered systems)

**Purpose**—Replaces the NT6D82 Power System and QCA13 Power Cabinet.

The MPP600 is a modular power distribution and control system. It is contained in a cabinet that provides front and rear access. The power plant provides –48 V DC output at a maximum capacity of 600 amps, provided in 50-amp increments by up to 12 plug-in rectifier modules. The NT5C07 Modular Power Rectifiers are contained in one or two cabinets, providing 300 amps per cabinet. Each rectifier requires one 20-amp feed of single-phase 60 Hz, 208 V or 240 V AC input.

For information on the MPP600 Modular Power Plant, see the following documents:

- *MPP600 Modular Power Plant: Description, installation, operation and maintenance manual* (167-9021-105)

**Quantity**—One per system, consisting of one or two cabinets housing as many rectifiers as required to meet system power needs

## NT6D40 PE Power Supply DC

**System hardware**—Options 51C/61C/81C (DC only)

**Purpose**—Converts –48 V DC to +5 V, +8.5 V, ±10 V, ±15 V, and –48 V DC voltages used to power peripheral equipment circuit cards and to supply talk battery to lines and trunks. Located in the far left-hand card slot labeled "PE Pwr Sup."

**Quantity**—One in each of the following modules:

- NT8D37DC or NT8D37EC IPE Module

## NT6D41 CE Power Supply DC

**System hardware**—Options 51C/61C/81C (DC-powered systems)

**Purpose**—Converts –48 V DC to +5 V and ±12 V DC to provide required voltages for CPU, network, and Meridian Mail equipment. Located in the far left-hand card slot labeled "CE Pwr Sup."

**Quantity**—One in each of the following modules:

- NT5D21DC Core/Network Module
- NT8D35DC Network Module

## NT6D42 Ringing Generator DC

**System hardware**—Options 51C/61C/81C (DC-powered systems)

**Purpose**—Replaces the NT7D03 Ringing Generator DC.

A 16-ringer ringing generator. Operates from a nominal –52 V DC input and provides selectable AC ringing voltage outputs superimposed on –52 V DC. Frequency and voltage options are 20/25/50 Hz and 70/75/80/86 V AC. Supplies –120 (–100 with vintage NT6D42CC) or –150 V DC Message Waiting lamp voltages for 500/2500 telephones. Located to the right of the NT6D40 PE Power Supply.

**Quantity**—One in each of the following modules if the module supports 500/2500 telephones:

- NT8D37DC or NT8D37EC IPE Module

## NT7D67CB Power Distribution Unit DC

**System hardware**—Options 51C/61C/81C (DC-powered systems)

**Purpose**—Replaces the NT7D10 PDU. However, NT7D67 and NT7D10 PDUs can be mixed in a system.

Distributes power to the entire column. Located in the rear of the pedestal. Houses five circuit breakers (one for each module and one for the blower unit) and the system monitor.

**Quantity**—One per pedestal/column

## NT8D06AB PE Power Supply AC

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—Converts 208/240 V AC to +5V, +8.5V, ±10V, ±15V, and –48 V DC voltages used to power peripheral equipment logic cards and to supply talk battery to lines and trunks. Located in the far left-hand card slot labeled "PE Pwr Sup."

**Quantity**—One in each of the following modules:

- NT8D37AA or NT8D37BA IPE Module

## NT8D21 Ringing Generator AC

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—Operates from a nominal 208/240 V AC input and provides selectable AC ringing voltage outputs superimposed on –48 V DC. Frequency and voltage options are 20/25/50 Hz and 70/80/86 V AC. Supplies –150 V DC Message Waiting lamp voltages for 500/2500 telephones. Located to the right of the NT8D06 PE Power Supply.

**Quantity**—One in each of the following modules if the module supports 500/2500 telephones:

- NT8D37AA or NT8D37BA IPE Module

## NT8D22 System Monitor

**System hardware**—Options 51C/61C/81C

**Purpose**—Monitors the status of all internal power and cooling-related components, as well as external DC rectifiers, batteries, and uninterruptible power supplies (UPS). Mounted in the rear of the pedestal.

The system monitor that handles the communication with the system CPU (via SDI port) is the master; all others function as slaves. There is a serial communication link between the master and the slaves. In addition to CPU status reporting, the system monitor controls all external visual status indications.

**Quantity**—One master and up to 63 slaves per system; one required for each column

## NT8D29AB CE Power Supply AC

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—Converts 208/240 V AC to +5V and ±12 V DC to provide required voltages for CPU, network, and Meridian Mail equipment. Located in the far left-hand card slot labeled “CE Pwr Sup.”

**Quantity**—One in each of the following modules:

- NT5D21AA Core/Network Module
- NT8D35AA Network Module

## NT8D46AC Thermostat Harness

**System hardware**—Options 51C/61C/81C

**Purpose**—Part of the temperature sensor assembly. Contains two thermal sensors and a fault LED. At 70 degrees C (158 degrees F), the thermal sensors open and notify the system monitor, which shuts down the system. Plugs into the backplane of the top module.

**Quantity**—One per column

## NT8D46AM Air Probe Harness AC

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—Part of the temperature sensor assembly. Senses exit air temperature and relates the information to the blower unit.

**Quantity**—One per top cap

## NT8D46DC Air Probe Harness DC

**System hardware**—Options 51C/61C/81C (DC-powered systems)

**Purpose**—Part of the temperature sensor assembly. Senses exit air temperature and relates the information to the blower unit.

**Quantity**—One per top cap

## NT8D52AB Pedestal Blower Unit AC

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—Housed in the front of the pedestal. Provides forced-convection cooling. Contains two backward-curved cylindrically shaped impellers (rotor blades) that are approximately 22.8 cm (9 in.) in diameter and 6.9 cm (2.75 in.) thick. Each unit weighs about 1.5 kg (3.5 lb). Communicates with the power distribution system through a connector on the rear of the PDU.

A circuit breaker on the front of the blower chassis turns the unit on and off.

**Quantity**—One per pedestal

## NT8D52DD Pedestal Blower Unit DC

**System hardware**—Options 51C/61C/81C (DC-powered systems)

**Purpose**—Housed in the front of the pedestal. Provides forced-convection cooling. Contains two backward-curved cylindrically shaped impellers (rotor blades) that are approximately 22.8 cm (9 in.) in diameter and 6.9 cm (2.75 in.) thick. Each unit weighs about 1.5 kg (3.5 lb). Communicates with the power distribution system through a connector on the rear of the PDU.

A switch on the front of the blower chassis turns the unit on and off. There is also a dedicated circuit breaker on the PDU.

**Quantity**—One per pedestal

## NT8D53CA Power Distribution Unit AC

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—Distributes power to the entire column. Located in the rear of the pedestal. Houses the main circuit breaker for the system.

**Quantity**—One per pedestal/column in AC systems

## NT8D53AD Power Distribution Unit

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—A panel located in the pedestal that distributes power to the module and top cap. Contains a circuit breaker and power distribution components optimized for single-module operation.

**Quantity**—One per system

## NT8D56AA CE Module Power Distribution Unit

**System hardware**—All (AC-powered systems)

**Purpose**—The MPDU protects the power supply and distributes power within a module. Houses a single breaker used in conjunction with the NT8D29 CE Power Supply AC.

**Quantity**—One in each of the following modules:

- NT5D21AA Core/Network Module
- NT8D35AA Network Module

## NT8D56AC CE/PE Module Power Distribution Unit

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—The MPDU protects the power supply and distributes power within a module. Houses a single breaker.

**Quantity**—One per NT8D37AA or NT8D37BA IPE Module

## NT8D57AA PE Module Power Distribution Unit

**System hardware**—Options 51C/61C/81C (AC-powered systems)

**Purpose**—The MPDU protects the power supply and distributes power within a module. Houses a dual breaker and is used in conjunction with the NT8D06 PE Power Supply AC and the NT8D21 Ringing Generator AC.

**Quantity**—One in each of the following modules:

- NT8D37AA or NT8D37BA IPE Module

## QBL12 Battery Distribution Box

**System hardware**—Options 51C/61C/81C (DC-powered systems)

**Purpose**—Connects customer-provided external power sources to the system. Allows connection of up to 12 columns.

**Quantity**—One per system when customer supplies power source

# Common equipment cards

## Content list

The following are the topics in this section:

Reference list . . . . . 36
NT1P61 Fibre Superloop Network Card . . . . . 36
NT1P63 Fibre Electro-optical Interface packlet . . . . . 36
NT4N43 cPCI Multi-Media Disk Unit (MMDU) . . . . . 37
NT4N65 cPCI® Core to Network Interface (cCNI) . . . . . 37
NT4N66 cPCI Core to Network Interface Transition (cCNI Trans) . . . 37
NT4N67 System Utility (Sys Util) . . . . . 38
NT4N68 System Utility Transition (Sys Util Trans) . . . . . 38
A0810496 Call Processor Pentium II® (CP PII) . . . . . 38
NT4N64 Call Processor Pentium II® (CP PII) . . . . . 39
NT5D03 Call Processor Card . . . . . 39
NT5D10 Call Processor Card . . . . . 40
NT5D12AA Dual DTI/PRI (DDP) Card . . . . . 41
NT5D61 Input/Output Disk Unit with CD-ROM (IODU/C) . . . . . 42
NT6D65 Core to Network Interface Card . . . . . 43
NT6D73 Multipurpose ISDN Signaling Processor . . . . . 44
NT6D80 Multipurpose Serial Data Link Card . . . . . 45
NT7R51 Local Carrier Interface Card . . . . . 45
NT8D04 Superloop Network Card . . . . . 46
NT8D17 Conference/TDS Card . . . . . 46

NT8D41BA Quad Density Serial Data Interface . . . . . 47
NT8D72 Primary Rate Interface 2 Mbps . . . . . 48
NTRB33 Fiber Junctor Interface (FIJI) Card . . . . . 48
NTRE39 Optical Cable Management Card (OCMC) . . . . . 49
QPC43 Peripheral Signaling Card . . . . . 49
QPC414 Network Card . . . . . 49
QPC441 Three-Port Extender Card . . . . . 50
QPC471 Clock Controller Card . . . . . 50
QPC720 Primary Rate Interface Card . . . . . 51
QPC841 Four-Port Serial Data Interface Card . . . . . 52

## Reference list

The following are the references in this section:

- *System Engineering* (553-3001-151)
- *ISDN Basic Rate Interface: Product Description* (553-3901-100)

## NT1P61 Fibre Superloop Network Card

**System hardware**—All

**Purpose**—Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Utilizes the equivalent of four network loops. Can be connected to one NT1P62 Fibre Peripheral Controller card.

The superloop network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the intelligent peripheral controller over a fibre-optic span.

**Quantity**—As required. See *System Engineering* (553-3001-151) for engineering details.

## NT1P63 Fibre Electro-optical Interface packlet

**System hardware**—All

**Purpose**—Provides a synchronous 155.52 MBps point-to-point transmission facility between the Fibre Superloop Network card MPU and the Fibre Peripheral Controller card MPU.

**Quantity**—Up to two on each Fibre Superloop Network card (NT1P61). The second packlet on the Network card provides a redundant fibre-optic link.

## NT4N43 cPCI Multi-Media Disk Unit (MMDU)

**System hardware**—Option 81C

**Purpose**—The MMDU card contains the drives that store system software and databases. The MMDU card includes:

- a **hard disk** to store the system database and software.
- a **floppy disk** to install software or back up databases
- a **CD-ROM** to install system software

**Quantity**—One for each Core/Net module (NT4N46).

## NT4N65 cPCI® Core to Network Interface (cCNI)

**System hardware**—Option 81C

**Purpose**—The cCNI cards connect the Core module cards to the 3PE cards in the Network modules.

Since each cCNI card can connect to two Network groups, each Core is connected to a minimum of two groups and a maximum of eight groups. The number of cCNI cards in a system depends on the number of Network groups in that system.

The first cCNI card that connects to Network group 0 and group 1 is installed in slot c9 of each Core/Net module. Each additional cCNI card is installed in ascending order from slots c10 to c12.

**Quantity**—Up to four cCNI cards for each Core/Net module (NT4N46).

## NT4N66 cPCI Core to Network Interface Transition (cCNI Trans)

**System hardware**—Option 81C

**Purpose**—The cCNI Transition cards provide the cable connections to the 3PE Termination Panel in the rear of the module.

A cCNI Transition card is mounted directly behind each cCNI card (on the back side of the Core backplane). Four cCNI Transition cards for Core/Net Module are installed in the factory regardless of how many cCNI main cards are configured for the system.

**Quantity**—Four cCNI Transition cards for each Core/Net module (NT4N46).

## NT4N67 System Utility (Sys Util)

**System hardware**—Option 81C

**Purpose**—The System Utility card supports Card ID. The card provides an interface between the security device and the computer, and an interface between the XSM and display panel for each cPCI core/net card cage. This card also includes a switch on the faceplate to enable or disable the Core cards.

**Quantity**—One System Utility card for each Core/Net module (NT4N46).

## NT4N68 System Utility Transition (Sys Util Trans)

**System hardware**—Option 81C

**Purpose**—The System Utility Transition card provides connections for the security device, the system monitor, and the status panel. This Transition card is mounted on the rear of the backplane (back side) directly behind the System Utility card.

One System Utility Transition card is installed in each Core/Net module.

**Quantity**—One System Utility Transition card for each Core/Net module (NT4N46).

## A0810496 Call Processor Pentium II® (CP PII)

**System hardware**—Option 81C (software Release xx to software Release 24.4x)

**Purpose**—The CP PII card contains a Pentium II processor to process calls, manage the 128 Mbyte memory and monitor the system. This card also provides serial and Ethernet interfaces used to manage the system.

**Quantity**—One CP PII card for each Core/Net module (NT4N46).

## NT4N64 Call Processor Pentium II® (CP PII)

**System hardware**—Option 81C (minimum software Release 24.4x)

**Purpose**—The CP PII card contains a Pentium II processor to process calls, manage the 256 Mbyte memory and monitor the system. This card also provides serial and Ethernet interfaces used to manage the system. Recommended for systems with six or more network groups

**Quantity**—One CP PII card for each Core/Net module (NT4N46).

## NT5D03 Call Processor Card

**System hardware**—Options 51C/61C

**Purpose**—The Call Processor card, the main processor in the system, is a 32-bit Motorola 68LC060, 66 MHz microprocessor. The NT5D03 CP card delivers a real-time capability improvement to the NT5D10 CP card. The Call Processor card performs the following main functions:

- Executes all call processing software at a higher clock rate than the NT5D10 CP card.
- Interfaces with the interprocessor bus over the backplane for communication with other cards on the IPB, using the Bus Interface Circuit (BIC) for communication with the IPB.
- Provides on-board main memory and cache memory
- Provides a system time-of-day clock/calendar
- Provides a pair of serial data ports for maintenance and administration.

***Note:*** Cabling the Call Processor cards together allows memory shadowing and dual-CPU operation.The CP card is available in the following memory configurations:

| CP Memory | Product code |
|---|---|
| 48 MB | NT5D03AA |
| 64 MB | NT5D03BA |
| 80 MB | NT5D03CA |
| 112 MB | NT5D03EA |
| 128 MB | NT5D03FA |

**Quantity**—One per NT5D21 Core/Network Module for Options 51C/61C. Each CP card occupies two card slots.

## NT5D10 Call Processor Card

**System hardware**—Options 51C/61C

**Purpose**—The Call Processor card, the main processor in the system, is a 32-bit Motorola 68LC060, 66 MHz microprocessor. The Call Processor card performs the following main functions:

- Executes all call processing software
- Interfaces with the interprocessor bus over the backplane for communication with other cards on the IPB, using the Bus Interface Circuit (BIC) for communication with the IPB.
- Provides on-board main memory and cache memory
- Provides a system time-of-day clock/calendar
- Provides a pair of serial data ports for maintenance and administration.
- Cabling the Call Processor cards together allows memory shadowing and dual-CPU operation.

  ***Note:*** The CP card is available in the following memory configurations:

| CP Memory | Product code |
|---|---|
| 48 MB | NT5D10AA |
| 64 MB | NT5D10CA |

| | |
|---|---|
| 80 MB | NT5D10EA |
| 112 MB | NT5D10JA |

**Quantity**—One per NT5D21 Core/Network Module for Options 51C/61C. Each CP card occupies two card slots.

## NT5D12AA Dual DTI/PRI (DDP) Card

**System Hardware—**Options 51C/61C/81C software Release 18 or later; requires the DP patch.

**Purpose—**Provides two DTI/PRI network connections, an optional connection to an external D-Channel Handler (QPC757 DCHI or NT6D80 MSDL), and an optional plug-on D-Channel Daughterboard (DDCH, NTBK51AA). The card integrates the functionality of two QPC472 DTI/QPC720 PRI cards and one QPC414 Network card into a single card.

The NT5D12AA occupies a single Network shelf slot. The DDP card supports all features (except the echo canceller and protocol conversion) of the QPC720. It provides an interface to the 1.5 Mbps external digital line, either directly or through an office repeater, Line Terminating Unit (LTU), or Channel Service Unit (CSU).

**Quantity—**As required.

# NT5D61 Input/Output Disk Unit with CD-ROM (IODU/C)

**System hardware**—Options 51C/61C

**Purpose**—Introduced in software Release 23, the Input/Output Disk Unit with CD-ROM (IODU/C) is used to load the programs and office data into the system memory. IODU/C uses an industry-standard 2MB floppy drive instead of a 4MB floppy drive. Additionally, the NT5D61AA IODU/C has a CD-ROM drive accessed on the faceplate, to facilitate loading software from a CD-ROM containing system software.

A Security Device attached to the IODU/C and an electronic Keycode file are used to perform the validation of the customers' specific features and software release. The Security Device is a removable component to allow the replacement of an IODU/C without the need to order a new Security Device.

The IODU/C also contains:

- I/O processor circuitry
- one 2MB 3.5-inch high-density floppy drive with a formatted capacity of 1.44 MB.
- one CD-ROM drive (in NT5D61AA vintage only)
- one 3.5-inch hard disk drive with a minimum capacity of 120 MB

The IODU/C occupies slots 17, 18, and 19 in the NT5D21 Core/Network Module for Options 51C, 61C, and 81C and requires 5 V and 12 V from the module.

The IODU/C is available in two vintages:

| | |
|---|---|
| NT5D61AA | Includes hard drive, 2MB floppy drive, and CD-ROM drive. |
| NT5D61BA | Includes hard drive and 2MB floppy drive. |

***Note:*** NT5D61AA is mandatory on Option 51C systems. The Option 61C system must have at least one NT5D61AA IODU/C to allow software installation from CD-ROM.

The IODU/C supports card-ID, which includes the card type, NT code, serial number, and any other relevant data for the IODU/C.

## NT6D65 Core to Network Interface Card

**System hardware**—Options 51C/61C

**Purpose**—The CNI card provides the interface between the interprocessor bus and the network shelves, and between the Call Processor Card and QPC441 3PE Cards in the network shelf. Each CNI card provides two ports (you are not required to use both ports).

CNI cards are used in the NT5D21 Core/Network Module for Options 51C, and 61:

| System type | Network Groups | CNI cards required | Module | Slots used |
|---|---|---|---|---|
| 51C | 1/2 | 1 | NT5D21 Core/ Network Module NT5D21 Core/ Network Module | 12 |
| 61C | 1 | 1 | NT5D21 Core/ Network Module | 12 |

# NT6D73 Multipurpose ISDN Signaling Processor

**System hardware**—Option 51C/61C (minimum software Release 18)

**Purpose**—The MISP card is a microprocessor-controlled signaling processor that provides a communication interface between the CPU and peripheral devices. The MISP card interfaces with S/T Interface Line Cards (SILCs) and U Interface Line Cards (UILCs). The main functions of the MISP are to:

- communicate with the CPU to report ISDN BRI status and receive downloaded application software and configuration parameters
- manage data link layer and network layer signaling that controls call connection and terminal identification
- control terminal initialization and addressing
- assign B-channels for switched voice and data transmission by communicating with the BRI terminal over the D-channel and allocating to it an idle B-channel with appropriate bearer capabilities
- separate D-channel data from signaling information and route the data to the packet handler
- send call control messages to ISDN BRI terminals over the D-channel

The MISP occupies one slot in the Network module. It uses one of the network loops to interface with SILCs and UILCs and to provide 32 timeslots for D-channel signaling and packet data transmission. The other loop address is used to communicate with the CPU.

**Quantity**—See *ISDN Basic Rate Interface: Product Description* (553-3901-100) for capacity requirements.

## NT6D80 Multipurpose Serial Data Link Card

**System hardware**—Option51C/61C/81C (minimum software Release 18)

**Purpose**—The MSDL card provides the signaling interface for primary rate interface (PRI) D-channels or application module link (AML) applications. It utilizes four full-duplex serial I/O ports that are independently configured. The MSDL card can coexist with other cards that support the same functions (such as QPC513 ESDI Cards).

> ***Note:*** This card currently does not support asynchronous mode, thus with Release 18 the realistic maximum number of MSDL cards is 14. This leaves two SDI port addresses for communication with the Meridian 1 via a terminal.

A Meridian 1 can support 16 MSDL cards. Since each card has four ports, a maximum of 64 ports are supported.

**Quantity**—Up to 16 per system

## NT7R51 Local Carrier Interface Card

**System hardware**—All

**Purpose**—Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Utilizes the equivalent of four network loops. Can be connected to one NT1R52 Remote Carrier Interface Card.

The Superloop Network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the Intelligent Peripheral Controller over a T1 or E1 carrier span.

**Quantity**—As required; see *System Engineering* (553-3001-151)

# NT8D04 Superloop Network Card

**System hardware**—All

**Purpose**—Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Utilizes the equivalent of four network loops. Can be connected to one or two NT8D01 Controller Cards.

The Superloop Network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the Intelligent Peripheral Controller.

**Quantity**—As required; see *System Engineering* (553-3001-151) for engineering details.

# NT8D17 Conference/TDS Card

**System hardware**—All

**Purpose**—Provides both conference and tone and digit switch (TDS) functions. Accesses two network loops, one for each function.

The conference circuitry has a warning tone option and supports broadcast mode. Up to 15 simultaneous conferences can be controlled with the restriction that the total number of conferees in all conferences is not greater than 30. The TDS circuitry provides tones for different countries (up to 256 tones and cadences).

The Multi-frequency signaling (MSF) provides Automatic Number Identification (ANI) digits over Centralized Automatic Message Accounting (CAMA) trunks to a toll switching CAMA, Traffic Operator Positioning System (TOPS), or Traffic Service Positioning System (TSPS) office

**Quantity**—As required; see *System Engineering* (553-3001-151)

# NT8D41BA Quad Density Serial Data Interface

**System hardware**—Option 51C/61C/81C

**Purpose**—Replaces the QPC841 Quad Density Serial Data Interface, NT8D14AA Extended Dual Density Serial Data Interface, and QPC139 Dual Density Serial Data Interface cards. For dual density cards, it is a one for two replacement. Provides four serial ports between the Meridian 1 processor and an external device. Each port supports:

- RS-232-C interface
- 8-bit ASCII data, no parity and 1 stop bit
- asynchronous, start-stop operation
- data rates of 150, 300, 600, 1200, 2400, 4800, 9600, and 19200 baud
- DTE mode
- DCE mode

**Quantity**—One per Core/Network Module on Options 51C/61C/81C.

# NT8D72 Primary Rate Interface 2 Mbps

**System hardware**—Option 51C/61C/81C

**Software generic**— International Phase 5 and later

**Purpose**—The Primary Rate Interface (PRI) card allows thirty 64 kbps clear channel operation with a single 64 kbps common signaling channel. The PRI circuit card provides the physical carrier interface.

The NT8D72BA vintage card provides a fully compliant card for the introduction of Euro ISDN. It complies with the following:

- CCITT G.703 specification for both Private and CO connectivity
- Euro ISDN requirements including ETSI specifications and country application requirements
- PTT 850.614
- ETS 300 001

**Quantity**—One per Primary Rate Access (PRA) link

# NTRB33 Fiber Junctor Interface (FIJI) Card

**System hardware**—Option 81C

**Purpose**—The Fiber Network feature introduces the FIJI card for Option 81C systems. FIJI cards are installed in Network modules and connect with fiber optic cables to form a Dual Ring Fiber Network. This network replaces the Intergroup Module and consists of two separate rings; one ring connects all of the Shelf 0's while the second ring connects all of the Network Shelf 1's. This network communicates on a subset of the Sonet OC 12c protocol (22 Mb bandwidth on each ring).

The Dual Ring fiber optic cable configuration provides complete non-blocking communication between the network groups; this eliminates the occurrence of busy signals for calls switched between groups. Each FIJI card can handle 32 PCM links. A system of eight Network groups provides 7680 timeslots for 3840 simultaneous conversations.

**Quantity**—One FIJI card per Network module.

## NTRE39 Optical Cable Management Card (OCMC)

**System hardware**—Option 81C

**Purpose**—The OCMC is installed in Network modules to store and protect excess cable length. The OCMC ensures that the fiber cable is not bent beyond a 30 mm bend radius.

The OCMC contains no electronic components and is not powered by the backplane. This card is used primarily in Fiber Network upgrades where the intergroup cable distances vary greatly.

OCMC is a single width card installed between the Power Supply and slot 1 of a Network module.

**Quantity**—One OCMC per Network module, as required.

## QPC43 Peripheral Signaling Card

**System hardware**—Option 51C/61C/81C

**Purpose**—Provides a signaling interface between the CPU and PE through the network cards. Provides basic bit rate 2.048 MHz clock and timing signals for real-time functions.

**Quantity**—One per NT8D35 Network Module.

## QPC414 Network Card

**System hardware**—Option 51C/61C/81C

**Software generic**—

**Purpose**—Provides 30 traffic timeslots for every network loop. Provides speech path switching, signaling, and control circuits for two network loops. Interfaces between network and Meridian Mail Modules, and PRI and DTI cards.

**Quantity**—As required; see *System Engineering* (553-3001-151)

# QPC441 Three-Port Extender Card

**System hardware**—Option 51C/61C/81C

**Software generic**—

> ***Note:*** Replace QPC441 vintages for systems with software Release 18 and higher software as follows: A or B with B1, C with D, E (series A) with E (series B), E1 (series A) with E1 (series B), or with F.

**Purpose**—The 3PE card extends CPU data, address, and control signals to network loops:

- In Options 51C, and 61C, 3PE cards interface with NT6D65 Core to Network Interface Cards.
- In Option 81C, 3PE cards interface with NT4N65AB cCNI Cards through the 3PE Termination Panel.
- For Option 81C systems, vintage F or later is required in all modules (i.e., Core/Net and Network).

  ***Note:*** Port 0 on the 3PE card in each Core/Network Module extends the interprocessor bus to the interface section on the backplane, not to a network loop.

**Quantity**—One per NT5D21 Core/Network Module.

# QPC471 Clock Controller Card

**System hardware**—All

**Software generic**—

**Purpose**—Used in Option 81C to synchronize the Meridian 1 network to an external source clock and to generate and distribute clock to the Meridian 1 system. Also used with PRI and DTI in all options. In Option 51C, used only when equipped with PRI or DTI.

> ***Note:*** With Options 51C, 61C, and 81C, minimum vintage H is required.

**Quantity**—Two for Options 61C/81C; one for Option 51C.

# QPC720 Primary Rate Interface Card

**System hardware**—All

**Purpose**—The ISDN PRI card allows 64 kbps clear 23-channel operation with a single 64 kbps common signaling channel. It is used in conjunction with the QPC757 DCHI Card to provide Primary Rate Access (PRA). The PRI circuit card provides the physical DS-1 interface and is also used for DTI applications.

**Quantity**—One per PRA or DTI link

# QPC841 Four-Port Serial Data Interface Card

**System hardware**—All

**Purpose**—Provides four serial ports between the system processor and an external device. Each port supports:

- RS-232-C interface
- 8-bit ASCII data with parity and stop bit
- asynchronous, start-stop operation
- data rates of 300, 600, 1200, 2400, 4800, and 9600 baud
- DTE mode
- DCE mode

**Quantity**—Up to four per system.

# Peripheral equipment cards

## Contents

The following are the topics in this section:

Reference list . . . . . 58
NT1P62 Fibre Peripheral Controller Card . . . . . 58
NT1R20 OPS Analog Line Card . . . . . 58
NT5D11AA Line side T1 Line Card . . . . . 59
NT5D14AA Line side T1 Line Card . . . . . 59
NT5D51 Meridian Integrated Conference Bridge (MICB) . . . . . 60
NT5D60AA CLASS Modem Card (XCMC) . . . . . 62
NT5G11 Meridian Integrated Call Assistant (MICA) Card . . . . . 62
NT5K02 Flexible Analog Line Card . . . . . 63
NT5K02AB Flexible Analog Line Card (Australia) . . . . . 64
NT5K02DA Flexible Analog Line Card (France) . . . . . 65
NT5K02JA Flexible Analog Line Card (Denmark) . . . . . 66
NT5K02KA Flexible Analog Line Card (Holland) . . . . . 66
NT5K02LB Flexible Analog Line Card (New Zealand) . . . . . 67
NT5K02MA Flexible Analog Line Card (Norway) . . . . . 68
NT5K02NB Flexible Analog Line Card (Sweden) . . . . . 68
NT5K02SA Flexible Analog Line Card (Spain) . . . . . 69
NT5K07 Universal Trunk Card (Hong Kong) . . . . . 70
NT5K09 Quad DTMF Receiver . . . . . 72
NT5K10 Enhanced Dual Loop Peripheral Buffer . . . . . 72

NT5K17 Direct Dial Inward (DDI) Trunk Card (UK) . . . . . 73
NT5K17BA DDI Trunk Card (New Zealand) . . . . . 73
NT5K18 Flexible Central Office Trunk Card (UK) . . . . . 74
NT5K18BA Central Office Trunk Card (New Zealand) . . . . . 75
NT5K19 Flexible E&M Trunk Card (UK) . . . . . 76
NT5K19BA E&M Tie Trunk Card (New Zealand) . . . . . 76
NT5K20 Extended Tone Detector (UK) . .. . . . . 78
NT5K21AA Extended Multifrequency Compelled Sender/Receiver (XMFC/XMFE) . .. . . . . 78
NT5K36AA DID/DOD Trunk Card (Germany) . . . . . 79
NT5K36AB DID/DOD Trunk Card (Austria/Germany) . . . . . 79
NT5K48 Tone Detector Card (Global) . . . . . 80
NT5K48BA Tone Detector Card (Denmark) . . . . . 81
NT5K48DA Tone Detector Card (Norway) . . . . . 82
NT5K50AA E&M Tie Trunk Card (France) . . . . . 82
NT5K70AA Central Office Trunk Card (Finland/Germany) . . . . . 84
NT5K70AB Central Office Trunk Card (Austria/Finland/Germany) . . 84
NT5K71AA Central Office Trunk Card (Germany) . . . . . 85
NT5K71AB Central Office Trunk Card (Austria/Germany) . . . . . 86
NT5K72AA E&M Tie Trunk Card (Austria/Finland/Germany) . . . . . 87
NT5K82AA Central Office Trunk Card (Switzerland) . . . . . 88
NT5K82BA/CA Central Office Trunk Card (Australia) . . . . . 89
NT5K82HA Central Office Trunk Card (Belgium) . . . . . 90
NT5K83AA E&M Tie Trunk Card (Spain/Switzerland) . . . . . 91
NT5K83BA E&M Tie Trunk Card (Denmark) . . . . . 92
NT5K83CA E&M Tie Trunk Card (Norway) . . . . . 93
NT5K83DA E&M Tie Trunk Card (Holland) . . . . . 94
NT5K83EA E&M Tie Trunk Card (Australia) . .. . . . . 96
NT5K83FA E&M Tie Trunk Card (Sweden) . .. . . . . 97
NT5K83GA E&M Tie Trunk Card (Italy) . . . . . 98

NT5K83HA E&M Tie Trunk Card (Belgium) . . . . . 99
NT5K84AA Direct Inward Dial (DID) Trunk Card (Switzerland) . . . . 101
NT5K84BA Direct Dial Inward (DDI) Trunk Card (Australia) . . . . . 102
NT5K84HA Direct Inward Dial (DID) Trunk Card (Belgium) . . . . . 103
NT5K90AA Central Office Trunk Card (Denmark) . . . . . 104
NT5K90BA Central Office Trunk Card (Denmark) . . . . . 104
NT5K92AA Direct Inward Dial Auto Answer Circuit (DID Tester) (Austria/France/Germany/Switzerland) . . . . . 105
NT5K93AA Central Office Trunk Card (Norway) . . . . . 105
NT5K93BA Central Office Trunk Card (Norway) . . . . . 106
NT5K96JA Flexible Analog Line Card (Denmark) . . . . . 107
NT5K96KA Flexible Analog Line Card (Holland) . . . . . 107
NT5K96MA Flexible Analog Line Card (Norway) . . . . . 107
NT5K96NB Flexible Analog Line Card (Sweden) . . . . . 107
NT5K96SA Flexible Analog Line Card (Spain) . . . . . 108
NT5K99AA/BA Central Office Trunk Card (Spain) . . . . . 108
NT6D70BA S/T Interface Line Card (SILC) . . . . . 109
NT6D71 U Interface Line Card (UILC) . . . . . 110
NT6D72 Basic Rate Concentrator Signaling Card . . . . . 111
NT7D16 Data Access Card . . . . . 111
NT7R52 Remote Carrier Interface Card . . . . . 111
NT8D01 Controller Card . . . . . 112
NT8D01AC Controller-4 Card . . . . . 112
NT8D01AD Controller-2 Card . . . . . 113
NT8D02 Digital Line Card . . . . . 113
NT8D03 Analog Line Card . . . . . 114
NT8D09 Analog Message Waiting Line Card . . . . . 114
NT8D14 Universal Trunk Card . . . . . 115
NT8D15 E&M Trunk Card . . . . . 116
NT8D16 Digitone Receiver Card . . . . . 117

NT9C14AA CO/FX/WATS Trunk Card . . . . . 117
NTAG03AA Central Office Trunk Card (Holland) . . . . . 118
NTAG04AA Central Office/Direct Inward Dial Trunk Card (Holland) . . 119
NTAG26 Enhanced Multi-frequency Receiver . . . . . 120
NTAG36 Meridian Integrated RAN (MIRAN) . . . . . 120
NTBX80AA ISDN Network Termination Unit (NT1) . .. . . . . 122
NTBX84AA/BA Rack mount NT1 Card—Basic/Enhanced . . . . . 122
NTCK16 Generic Central Office Trunk Card . . . . . 123
NTCK18AA Central Office Trunk Card (Italy) . . . . . 125
NTCK22AA Direct Inward Dial Trunk Card (Italy) . . . . . 126
NTCK90 Companion Meridian 1 Controller Card . . . . . 127
NTCK91 Companion Meridian 1 Radio Card . . . . . 127
NTCK93 Companion Meridian 1 Line Card . . . . . 127
NTCW00AB DECT Mobility Card . . . . . 127
NTCW01AB DECT Mobility Card-Expander . . . . . 128
NTCW80 Meridian Integrated IP Telephony Gateway (ITG) Card . .. 128
QPC71 E&M/DX/Paging Trunk Card . . . . . 130
QPC250 Release Link Trunk Card . . . . . 130
Meridian 1QPC297 Attendant Console Monitor Card . . . . . 131
QPC311 Data Line Card . . . . . 131
QPC327 MFC Sender/Receiver Card . . . . . 131
QPC341 Data Line Card . . . . . 131
QPC343 Ground Button Recall Line Card . . . . . 131
QPC353 Modem Pool Line Card . . . . . 132
QPC354 Modem Pool Line Card . . . . . 132
QPC390 Pulsed E&M Trunk Card . . . . . 132
QPC391 Pulsed E&M Trunk Card . . . . . 132
QPC397 MCDS Asynchronous Card . . . . . 132
QPC422 Tone Detector Card . . . . . 132
QPC430 Asynchronous Interface Line Card . . . . . 133

QPC432 4-Port Data Line Card . . . . . 133
QPC449 Loop Signaling Trunk Card . . . . . 134
QPC450 CO/FX/WATS Trunk Card . . . . . 134
QPC451 SL-1 Set Line Card . . . . . 135
QPC494 500/2500 Line Card (Message Waiting) . . . . . 135
QPC512 Personal Computer Interface Card . . . . . 136
QPC520 SL-1 Line Card . . . . . 136
QPC521 500/2500 Line Card . . . . . 137
QPC525 CO/FX/WATS Trunk Card with PPM . . . . . 137
QPC526 CO/FX/WATS Trunk Card with PPM . . . . . 137
QPC527 CO/FX/WATS Trunk Card . . . . . 137
QPC528 CO/FX/WATS Trunk Card . . . . . 138
QPC532 Ground Button Recall Line Card . . . . . 138
QPC540 Dial Tone Detector . . . . . 138
QPC550 DID Trunk Card . . . . . 138
QPC551 Radio Paging Trunk Card . . . . . 139
QPC558 Message Waiting Line Card . . . . . 139
QPC559 Loop Signaling Trunk Card . . . . . 139
QPC560 Loop Signaling Trunk Card . . . . . 139
QPC574 Digitone Receiver . . . . . 139
QPC577 Digitone Receiver Daughterboard (µ-Law) . . . . . 140
QPC578 Integrated Services Digital Line Card . . . . . 140
QPC594 500/2500 Line Card . . . . . 140
QPC595 Digitone Receiver . . . . . 141
QPC596 Digitone Receiver Daughterboard (A-Law) . . . . . 141
QPC650 Music Trunk Card (µ-Law) . . . . . 142
QPC651 Music Trunk card (A-Law) . . . . . 142
QPC659 Dual Loop Peripheral Buffer Card . . . . . 142

## Reference list

The following are the references in this section:

- *Meridian Data Services: Description* (553-2731-100)
- *Meridian Integrated Conference Bridge: Description, Installation, Administration, and Maintenance* (553-3001-102)
- *Line Cards: Description* (553-3001-105)
- *Trunk Cards: Description* (553-3001-106)
- *Meridian 1 Integrated RAN: Description, Installation, and Operation* (553-3001-112)
- *Meridian 1 Integrated Telephony Gateway Trunk 1.0/Basic Per-Trunk Signaling: Description, Installation, and Operation* (553-3001-116)
- *System Engineering* (553-3001-151)
- *Features and Services* (553-3001-306)
- *Administration* (553-3001-311)
- *ISDN Basic Rate Interface: Product Description* (553-3901-100)

## NT1P62 Fibre Peripheral Controller Card

**System hardware**—Fibre Remote IPE floor-standing module and wall-mounted cabinet.

**Purpose**—Provides a primary interface and control function between the NT1P61 Fibre Superloop Network Card in Meridian 1 and the IPE module at the Fibre Remote IPE site. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

**Quantity**—One per NT8D37 IPE Module

## NT1R20 OPS Analog Line Card

**System hardware**—Options 51C/61C/81C

**Purpose**—The Off-Premises Station Analog Line card provides eight full duplex interfaces used to connect off-premises terminals to the Meridian 1 system. Each interface provides lightning protectors for external line connection to the station.

The NT1R20BA OPS Analog Line Card provides:

- line supervision
- hookflash
- battery reversal

**Quantity**—Up to 15 per IPE module. It can also be installed in the CE/PE module PE slots.

## NT5D11AA Line side T1 Line Card

**System hardware**—Options 51C/61C/81C

**Purpose**—An intelligent IPE line card that provides an all-digital connection between T1-compatible terminal equipment. Supports supervisory features and has access to 2500-type functionality. Use only on terminal equipment that has a T1 interface and line side feature capability.

**Quantity**—Up to fifteen per IPE module.

## NT5D14AA Line side T1 Line Card

**System hardware**—All (Meridian 1 systems: in small Remote Fiber IPE cabinets)

**Purpose**—An intelligent IPE line card that provides an all-digital connection between T1-compatible terminal equipment. Supports supervisory features and has access to 2500-type functionality. Use only on terminal equipment that has a T1 interface and line side feature capability.

**Quantity**—Up to ten in the small Remote IPE main cabinet; up to six additional in small Remote IPE expansion cabinet.

# NT5D51 Meridian Integrated Conference Bridge (MICB)

**System hardware—**Options 51C//61C/81C. Systems with software Release 22 or higher support 32 ports per MICB card, while systems with software Release 19 through 21 support only 16 ports per MICB card.

**Purpose**—The NT5D51 Meridian Integrated Conference Bridge (MICB) card provides up to 32 ports supporting bridge and conference scheduling for up to ten simultaneous conferences. For a single MICB card with 32 ports, there can be a maximum of ten simultaneous conferences with three or four participants in each conference, one conference with a maximum of 32 participants, or any combination in between. A customer can purchase a single MICB card with either a 12 port, 16 port, 24 port, or 32 port package.

Each MICB port is configured as a M2616 digital telephone set. The Meridian 1 system ACD function routes the incoming calls to an MICB card, where each MICB port is treated as an ACD agent. All ports on an MICB card belong to the same ACD queue and are treated as a pool of ports with equal status.

The MICB supports one chairperson per conference who can control conference activities by executing commands on his or her telephone set, such as dialing out to a new party outside of the conference, dropping all participants, and locking or unlocking the conference to prevent or allow new participants in the conference

The original MICB card (NT5D51AA) provides a command line interface (CLI) for scheduling and managing conferences as well as performing certain administrative and maintenance functions. The user accesses the CLI through a VT-100 terminal that is connected directly to the card, or through a terminal-emulating PC that is connected to the customer's LAN.

The MICB Release 2.0 card (NT5D51AB) provides both a browser user interface (BUI) and a telephone user interface (TUI) for scheduling and managing conferences; the CLI is still used for certain administrative and maintenance functions. The user accesses the BUI via a web browser and the LAN. The user access the TUI through any DTMF telephone.

Two MICB Release 2.0 cards (NT5D51AB) can be linked in a dual-card configuration to allow up to 62 participants in a single conference. In the dual-card configuration, one card acts as the primary card and the other acts as the secondary card. Two ports from the primary MICB card are used to transfer calls and open a talk path to the secondary card and are thus unavailable to host conference participants. The dual-card configuration can come in a 42 port, 50 port, or 62 port package.

For more information on the NT5D51 Meridian Integrated Conference Bridge card, please refer to *Meridian Integrated Conference Bridge: Description, Installation, Administration, and Maintenance* (553-3001-102).

## NT5D60AA CLASS Modem Card (XCMC)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf and software Release 23 or later.

**Purpose**—The NT5D60AA CLASS Modem card is introduced in software Release 23 to support the Custom Local Area Signaling Services (CLASS) feature. The CLASS Modem card receives Calling Number and Calling Name Delivery (CND) data and time/date data from an NT8D01 Controller card and transmits it to a line port, such as a port on an Analog Line card, which delivers the CND data to a CLASS telephone set when presenting the set with a new call.

The CLASS Modem card is designed to plug into any one of the peripheral card slots of the IPE module. Supports up to 32 transmit-only modem resources using a DS30X interface. Up to 255 modems are may be configured per system.

For information about the CLASS: Calling Number and Name Delivery feature, please refer to the *Features and Services* (553-3001-306). For administration and maintenance commands, see the *Administration* (553-3001-311).

Uses +5v power supplied by the power converter in the IPE shelf.

**Quantity**—One per IPE shelf.

## NT5G11 Meridian Integrated Call Assistant (MICA) Card

**System hardware**—Options 51C/61C/81C.

**Purpose**—Provides Intelligent Peripheral Equipment (IPE) that automatically answers incoming calls. Based on caller input and other information, the MICA card routes callers to their desired destination. MICA can be configured in several ways, from basic, menu-driven call handling to complex Automatic Caller Distribution (ACD) applications.

Systems with software Release 22 or higher support 32 MICA ports, while systems with software Release 19 through 21 support only 16 ports.

**Quantity**—One to eight Meridian Integrated Call Assistant Cards (MICA) per IPE module.

# NT5K02 Flexible Analog Line Card

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—Provides interface to up to 16 analog telephone sets (500/2500-type) equipped with either ground button recall switches, high-voltage Message Waiting lamps, or low-voltage Message Waiting LEDs. It performs several functions, some of which are:

- flexible transmission
- ground button operation
- low-voltage Message Waiting option
- card self-ID for auto-configuration

**Application**

- NT5K02AA high-voltage Message Waiting, analog line card typically used in Australia
- NT5K02DA ground button, low-voltage Message Waiting, analog line card typically used in France (see following description)
- NT5K02EA ground button, low-voltage Message Waiting, analog line card typically used in Germany
- NT5K02FA ground button, low-voltage Message Waiting, analog line card with 600¾ termination (A/D –4 dB, D/A–1 dB)
- NT5K02GA same as NT5K02FA with a different loss plan (A/D –4 dB, D/A –3 dB)
- NT5K02HA ground button, low-voltage Message Waiting, analog line card typically used in Belgium
- NT5K02JA low-voltage Message Waiting, analog line card typically used in Denmark (see following description)
- NT5K02KA ground button, low-voltage Message Waiting, analog line card typically used in Netherlands (see following description)
- NT5K02LA & LB analog line card typically used in New Zealand (see following description)

- NT5K02MA ground button, low-voltage Message Waiting, analog line card typically used in Norway (see following description)
- NT5K02NA ground button, low-voltage message Waiting, analog line card typically used in Sweden
- NT5K02PA ground button, low-voltage Message Waiting, analog line card typically used in Switzerland
- NT5K02QA ground button, low-voltage Message Waiting, analog line card typically used in United Kingdom

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K02AB Flexible Analog Line Card (Australia)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The NT5K02AB Flexible Analog Line Card with Message Waiting provides an interface for up to 16 analog (500/2500-type) telephone lines.

**Application**—The flexible analog line card can be installed in any PE slot that supports Intelligent peripheral equipment (IPE).

**Features**—The NT5K02AB Flexible Analog Line Card provides the following features:

- direct reporting of digits dialed (500 sets) by collecting 10 and 20 pps dial pulses
- telephone on hook and off hook detection
- relay for connecting an AC ringer
- automatic disconnection when the telephone set goes off hook
- flashing high-voltage 1 Hz Message Waiting signal

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K02DA Flexible Analog Line Card (France)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The flexible analog line card provides an interface for up to 16 analog (500/2500-type) telephone lines.

**Application**—The NT5K02DA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The flexible analog line card provides the following features:

- Message Waiting
- support of Digipulse or Digitone telephones
- telephone on hook and off hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog to digital and digital to analog conversion for 16 analog telephone lines
- terminating impedance of French Complex Impedance
- software-selectable A-Law or µ-Law companding
- provision of line current to telephones (Line current is limited on short loops or under fault conditions. Otherwise, current varies according to loop length to allow automatic gain compensation.)

# NT5K02JA Flexible Analog Line Card (Denmark)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The flexible analog line card provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following:

- hookswitch flash detection
- ground button detection
- variable loop current to allow automatic gain compensation according to loop length
- a flashing low-voltage 1 Hz Message Waiting signal

**Application**—The NT5K02JA is used in Denmark. On Meridian 1 systems, the NT5K02JA can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K02KA Flexible Analog Line Card (Holland)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The flexible analog line card with Message Waiting provides an interface for up to 16 analog (500/2500-type) telephone lines. The NT5K02KA Flexible Analog line card provides the following features:

- Message Waiting indicator flashing at a rate of 1 Hz at the telephone set
- support of Digipulse or Digitone telephones
- telephone on hook and off hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog to digital and digital to analog conversion for 16 analog telephone lines
- terminating impedance of 600 ohms

- software-selectable A-Law or µ-Law companding
- provision of line current to telephones (Line current is limited on short loops or under fault conditions. Otherwise, current varies according to loop length to allow automatic gain compensation.)

**Application**—The NT5K02KA is used in Holland. It can be installed in any PE slot that supports Intelligent Peripheral Equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K02LB Flexible Analog Line Card (New Zealand)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The NT5K02LB Flexible Analog Line Card with Message Waiting provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- telephone on hook and off hook detection
- ground button detection
- relay for connecting an AC ringer
- variable loop current to allow automatic gain compensation according to loop length
- flashing high-voltage 1 Hz Message Waiting signal

**Application**—The NT5K02LB Is used in New Zealand. It can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K02MA Flexible Analog Line Card (Norway)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The flexible analog line card provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following:

- hookswitch flash detection
- ground button detection
- variable loop current to allow automatic gain compensation according to loop length
- a flashing low-voltage 1 Hz Message Waiting signal

**Application**—The NT5K02MA is used in Norway. On Meridian 1 systems, the NT5K02MA can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K02NB Flexible Analog Line Card (Sweden)

**System hardware**—All

**Purpose**—The Flexible Analog Line Card provides an interface for up to 16 analog (500/2500-type) telephone lines.

**Application**—The NT5K02NB can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

There are two types of flexible analog line cards available for use in Sweden:

- the NT5K02NB line card with Message Waiting
- the NT5K96NB line card without Message Waiting

Both flexible analog line cards provide the following features:

- support of Digipulse or Digitone telephones
- telephone on hook and off hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog to digital and digital to analog conversion for 16 analog telephone lines
- terminating impedance of 600 ohms
- software-selectable A-Law or µ-Law companding
- provision of line current to telephones (Line current is limited on short loops or under fault conditions. Otherwise, current varies according to loop length to allow automatic gain compensation.)

## NT5K02SA Flexible Analog Line Card (Spain)

**System hardware**—All

**Purpose**—The NT5K02SA Flexible Analog Line Card provides an interface for up to 16 analog (500/2500-type) telephones lines.

**Application**—On Meridian 1 systems, the analog line card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The flexible analog line card provides the following features:

- analog to digital and digital to analog conversion for 16 analog telephone lines
- software-selectable A-Law or µ-Law companding
- card-identification for auto-configuration
- software-downloadable loss plan
- on hook/off hook detection
- connection for an AC ringing signal
- automatic disconnection when the telephone set goes off hook

- ground button detection
- direct reporting of digits dialed (500 sets) by collecting dial pulses (10 and 20 pulses per second)
- limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length
- flashing low-voltage 1 Hz Message Waiting signal

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K07 Universal Trunk Card (Hong Kong)

**System hardware**—All

**Purpose**—The NT5K07 Universal Trunk Card provides the interface between a trunk facility and either an NT8D37 Intelligent Peripheral Equipment (IPE) Module or an NT8D11 Common/Peripheral Equipment (CE/PE) Module.

**Application**—The Hong Kong universal trunk card has eight units that can be configured as:

- central office (CO), foreign exchange (FX), and wide area telephone service (WATS)
- direct inward dial (DID) and direct outward dial (DOD)
- tie two-way dial repeating (2DR) and two-way outgoing automatic incoming dial (OAID)
- Paging (PAG)

  ***Note:*** All-call zone paging is not supported.

- Recorded Announcement (RAN)

The universal trunk card also supports Music, Automatic Wake Up, and Direct Inward System Access (DISA). It does not support Message Registration or periodic pulse metering (PPM).

Table 3 on page 71 is a matrix of the trunk types and signaling supported by the universal trunk card.

**Table 3**
**Supported trunk type and signaling matrix**

| | CO/FX/ WATS | DID/ DOD | Tie | PAG | RAN |
|---|---|---|---|---|---|
| Loop start | yes | no (see Note) | no | no | no |
| Ground start | yes | no | no | no | no |
| Loop dial repeating | no | yes | yes | no | no |
| Loop OAID | no | no | yes | no | no |
| ***Note:*** DID trunks are loop dial repeating (loop start); however, programming trunks as loop start is not supported. | | | | | |

On Meridian 1 systems, the universal trunk card can be installed in any PE slot that supports intelligent peripheral equipment.

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K09 Quad DTMF Receiver

**System hardware**—NT5K11 EEPE module

**Purpose**—Converts multifrequency dialing signals from a Digitone station to DC pulses suitable for processing in the system control in A-Law applications.

The NT5K09 Quad DTMF Receiver reroutes dial tone to and receives Digitone from up to four Digitone telephones simultaneously. It converts the received Digitone into digital outputs suitable to the SL-1.

The receiver differentiates between valid Digitone signals and speech or noise without using out-of-band signals. Four receivers are available on each card.

Application—

- NT5K09AA typically used in Austria, Germany, France, Switzerland
- NT5K09BA typically used in Norway, Denmark
- NT5K09CA typically used in Belgium, Holland

**Quantity**—Two cards per NT5K11 EEPE module

# NT5K10 Enhanced Dual Loop Peripheral Buffer

**System hardware**—NT5K11 EEPE module

**Purpose**—Interfaces to eight peripheral equipment cards and one or two network loops.

**Quantity**—Two cards per NT5K11 EEPE module

# NT5K17 Direct Dial Inward (DDI) Trunk Card (UK)

**System hardware**—All

**Purpose**—Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are card identification, self-test, status reporting to the controller, and maintenance diagnostics.

The DDI provides eight analog trunks, each of which can be individually configured to operate as Direct Dial Inward units (DDI).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K17BA DDI Trunk Card (New Zealand)

**System hardware**—All

**Purpose**—The NT5K17BA Direct Dial Inward (DDI) Trunk Card provides the interface between the Meridian 1 system and up to eight analog DDI trunk lines. The NT5K17BA DDI card supports the following:

- pulse detection up to 22 pps
- dialing in the form of DTMF signaling or loop disconnect signaling
- New Zealand inverted dialing

**Application**—The NT5K17BA is used in New Zealand. It can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Each NT5K17BA DDI Trunk Card:

- allows trunk signaling type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides indication of card status on the faceplate LED
- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the New Zealand loss plan

- provides termination impedance to match the New Zealand three-component complex network
- provides transhybrid balance matching against the New Zealand complex impedance
- provides analog to digital and digital to analog call path losses for DDI trunk units, values downloadable in the initial configuration stage

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K18 Flexible Central Office Trunk Card (UK)

**System hardware**—All

**Purpose**—Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are control of card operation, card identification, self-test, status reporting to the controller, and maintenance diagnostics.

The card interfaces eight central office trunks with the system and can be configured in software for either A-Law or µ-Law operation. Each interface provides the appropriate complex impedance to the line in compliance with UK regulatory specifications.

Each of these ports can be individually configured to operate as follows:

- Ground Start CO trunk
- Loop Disconnect Clear
- Loop Guarded Release

Each of the above signaling schemes is designed in compliance with the relevant UK specifications.

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K18BA Central Office Trunk Card (New Zealand)

**System hardware**—All

**Purpose**—The NT5K18BA Central Office Trunk Card has eight identical units that provide the interface between the Meridian 1 system and up to eight analog Central Office (CO) trunks. The trunk type of each unit is configured independently in the trunk data block (LD 14) as one of the following:

- central office, ground start
- central office, loop start

The NT5K18BA central office card supports Direct Inward System Access (DISA), battery supervision, and inverted dialing.

**Application**—The NT5K18BA is used in New Zealand. It can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K18BA Central Office Trunk Card:

- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides complex terminating impedance in compliance with regulatory New Zealand standards
- provides complex balance impedance in compliance with regulatory New Zealand standards

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K19 Flexible E&M Trunk Card (UK)

**System hardware**—All

**Purpose**—Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are card identification, self-test, status reporting to the controller, and maintenance diagnostics.

The Flexible E&M provides four analog trunks, each of which can be individually configured to operate as follows:

- 4-wire E&M Type 1 tie trunk (DC5)
- 2-wire E&M TYPE 1 tie trunk (DC5)
- 2280 Hz tie trunk (AC15)
- Music trunk
- Paging trunk
- Emergency Recorder trunk

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K19BA E&M Tie Trunk Card (New Zealand)

**System hardware**—All

**Purpose**—The NT5K19BA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 tie trunk (DC5)
- Recorded Announcement trunk (RAN)
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K19BA E&M Tie Trunk Card supports New Zealand inverted dialing.

The NT5K19BA E&M Tie Trunk Card supports the following types of announcement machines:

- start mode announcement machines
- continuous mode announcement machines

Recorded announcers supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

**Application**—The NT5K19BA is used in New Zealand. It can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K19BA E&M Tie Trunk Card:

- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or µ-Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card; make break ratios are defined in software and downloaded during power up and by software commands
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M DC5 trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K20 Extended Tone Detector (UK)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—Provides eight channels of dual tone multifrequency (DTMF) and dial tone detection configurable on a per call basis. In addition, the type of dial tone to be detected is downloaded to the card upon initialization. Dial tone is either 330 Hz plus 440 Hz or 50 Hz. The channels are assigned on the DS30X loop. There is one 8 kbps signaling channel provided for maintenance messaging and tone reporting.

**Application**—This tone detector has been replaced by the NT5K48 tone detector.

**Quantity**—Up to 16 cards per NT8D37 IPE module

## NT5K21AA Extended Multifrequency Compelled Sender/Receiver (XMFC/XMFE)

**System hardware**—All Systems equipped with Meridian 1 IPE shelf

**Purpose**—Provides signaling across a trunk interface according to CCITT R2 signaling standard (XMFC). This card also provides signaling across a trunk interface according to French Socotel standards (XMFE), and operates in either A-Law or µ-Law companding.

**Application**—The NT5K21AA has four units, each capable of handling one call.

**Quantity**—Refer to *System Engineering* (553-3001-151) for engineering details

# NT5K36AA DID/DOD Trunk Card (Germany)

**System hardware**—All

**Purpose**—The NT5K36AA Direct Inward Dial/Direct Outward Dial Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

The NT5K36AA DID/DOD card supports three central office types: IKZ1, IKZ2, and IKZ3.

Each unit on the NT5K36AA DID/DOD card operates as a DID/DOD trunk and supports 16 kHz pulse detection. There are three modes of operation for the NT5K36AA circuit card:

- outgoing calls placed by Meridian 1
- short distance incoming calls from the central office
- long distance incoming calls from the central office

**Application**—The NT5K36AA is used in Germany. It can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K36AB DID/DOD Trunk Card (Austria/Germany)

**System hardware**—All

**Purpose**—The NT5K36AB Direct Inward Dial/Direct Outward Dial Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

**Application**—It can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

Each NT5K36AB DID/DOD Trunk Card:

- indicates self-test status during an automatic or manual self-test (self-test pass is indicated on the faceplate LED)
- converts transmission signals from analog to digital and from digital to analog for up to four audio paths

- disables individual circuits or the entire board under software control
- provides internal 16 kHz pulse detection
- provides transmission performance according to German specifications
- provides the correct signaling impedances and voltages to operate with the German central office

## NT5K48 Tone Detector Card (Global)

**System hardware**—All

**Purpose**—The NT5K48 Global Tone Detector circuit card provides tone detection for dual tone multifrequency (DTMF) or dial tone detection (DTD).

The NT5K48 Global Tone Detector circuit card:

- provides eight channels of DTMF or dial tone detection
- provides both first stage dial tone detection and second stage DTD on a call-by-call basis

  ***Note:*** The NT5K48 Tone Detector remains dedicated to the call while the connecting process is progressing. Once the call is connected, the tone detector is released. It does not detect dial tone after the call is established.

- supports both A-Law and µ-Law companding
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- provides for hardware self-test
- allows country-specific DTMF and dial tone characteristics to be downloaded from software

**Application**—The Global Tone Detector circuit card replaces the NT5K20 tone detector and operates in the following countries:

- Australia
- Denmark
- France

- Germany
- Holland
- Italy
- New Zealand
- Norway
- Spain
- Sweden
- Switzerland
- United Kingdom

***Note:*** The NT5K48 is configured in software. There are no switch settings on the card.

**Quantity**—Up to 16 cards per NT8D37 IPE module

## NT5K48BA Tone Detector Card (Denmark)

**System hardware**—All

**Purpose**—The NT5K48BA Tone Detector circuit card provides tone detection for either dual tone multifrequency (DTMF) or dial tone detection (DTD). It does the following:

- provides eight channels of tone detection configurable on a call connection basis
- DTD configurable on a call connection basis

  ***Note:*** The NT5K48 Tone Detector operates during call setup only. When a connection is established, it drops out of the call.

- allows country-specific DTMF and dial tone characteristics to be downloaded from software (using overlay 97)

**Application**—The NT5K48BA tone detector is designed for use in Denmark.

**Quantity**—Up to 16 cards per NT8D37 IPE module

# NT5K48DA Tone Detector Card (Norway)

**System hardware**—All

**Purpose**—The NT5K48 Tone Detector circuit card provides tone detection for either dual tone multifrequency (DTMF) or dial tone detection (DTD). The NT5K48DA tone detector is designed for use in Norway. It does the following:

- provides eight channels of tone detection configurable on a call connection basis
- provides both first stage dial tone detection and second stage DTD configurable on a call connection basis

  ***Note:*** The NT5K48 Tone Detector operates during call setup only. When a connection is established, it drops out of the call.

- allows country-specific DTMF and dial tone characteristics to be downloaded from software (using overlay 97)

**Application**—The NT5K48DA is designed for use in Norway.

**Quantity**—Up to 16 cards per NT8D37 IPE module

# NT5K50AA E&M Tie Trunk Card (France)

**System hardware**—All

**Purpose**—The NT5K50AA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

**Application**—The NT5K50AA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K50AA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M BPO (Type V)
- 4-wire E&M Type II
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K50AA E&M Tie Trunk Card:

- has four switch settings (one per unit) used to select BPO (Type V) E&M signaling.

  ***Note:*** Systems using Phase 8B or later software can select BPO signaling in overlay 14.

- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or µ-Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

# NT5K70AA Central Office Trunk Card (Finland/Germany)

**System hardware**—All

**Purpose**—The NT5K70AA Central Office Trunk Card supports eight analog central office (CO) trunks. It provides the following:

- loop start operation
- 16 kHz periodic pulse metering (PPM)

**Application**—The NT5K70AA is designed for use in Germany. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K70AB Central Office Trunk Card (Austria/Finland/Germany)

**System hardware**—All

**Purpose**—The NT5K70AB Central Office Trunk Card for Austria provides the interface between the Meridian 1 system and up to eight analog central office (CO) trunks.

**Application**—The NT5K70AB Trunk Card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K70AB Central Office Trunk Card:

- supports internal 16 kHz periodic pulse metering (PPM)
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law companding
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 2 dB transmission pads for long/short line operation
- provides termination and transhybrid balance impedance to match the German complex impedance network

- provides busy tone detection on a per unit basis, when configured to do so in software
- provides 100 ms flashhook for feature access
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

## NT5K71AA Central Office Trunk Card (Germany)

**System hardware**—All

**Purpose**—The NT5K71AA Central Office Trunk Card is based on the NT5K70AA Trunk Card, but it supports four analog central office (CO) trunks instead of eight. The NT5K71AA provides the following:

- loop start operation, and
- 16 kHz periodic pulse metering (PPM)

**Application**—The NT5K71AA is designed for use in Germany. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K71AB Central Office Trunk Card (Austria/Germany)

**System hardware**—All

**Purpose**—The NT5K71AB Central Office Trunk Card is the same as the NT5K70AB Trunk Card, but it connects up to four analog trunks instead of eight.

**Application**—The NT5K71AB Trunk Card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K71AB Central Office Trunk Card:

- supports internal 16 kHz periodic pulse metering (PPM)
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law companding
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 2 dB transmission pads for long/short line operation
- provides termination and transhybrid balance impedance to match the German complex impedance network
- provides busy tone detection on a per unit basis, when configured to do so in software
- provides 100 ms Flashhook for feature access
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

# NT5K72AA E&M Tie Trunk Card (Austria/Finland/Germany)

**System hardware**—All

**Purpose**—The NT5K72 E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

Recorded announcers supported include the Cook Digital 4-channel announcer, the Audichron HQI-112, and the Kreutler-Announcer.

**Application**—The NT5K72AA is designed for use in Germany. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K82AA Central Office Trunk Card (Switzerland)

**System hardware**—All

**Purpose**—The NT5K82AA Central Office Trunk Card supports eight analog central office (CO) trunks. It provides the following:

- loop start operation
- 12 kHz periodic pulse metering (PPM)
- a choice between the old Swiss loss plan and the new Swiss loss plan, depending on the hardware configuration of the system.
- trunk type to be configured on a per unit basis
- individual units or the entire board to be disabled by software
- software-selectable A-Law or µ-Law companding
- self-test status during an automatic or manual self-test
- card-identification for auto-configuration and for determining the serial number and firmware level of the card
- transmission signals from analog to digital and from digital to analog
- the new Swiss loss plan
- adjustable transmission pads for long or short line operation
- termination and transhybrid balance impedance to match the Swiss complex impedance network
- direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- loop break detection and supervision on a per unit basis
- barring detection and supervision on a per unit basis
- busy tone detection and supervision on a per unit basis

**Application**—The NT5K82AA is designed for use in Switzerland. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K82BA/CA Central Office Trunk Card (Australia)

**System hardware**—All

**Purpose**—The central office trunk card for Australia comes in two versions: NT5K82BA and NT5K82CA. The NT5K82CA card has an on-board 12 kHz PPM pulse detector, while the NT5K82BA card does not. The NT5K82BA card counts 50 Hz pulses that are detected using external filters.

**Application**—The central office trunk card has eight units and:

- supports loop start signaling
- allows the trunk type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or µ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- downloads transmit and receive losses to the B34 codec for operation over long and short lines
- provides termination and transhybrid balance impedance to match the Australian complex impedance network
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- provides Autoguard fault detection to prevent a faulty trunk from being seized on an outgoing call
- provides Fastguard (battery reversal) detection on incoming calls prior to ringing
- supports dynamic loss switching on a call by call basis
- provides busy tone detection to support far end release

On Meridian 1 systems, the central office trunk card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K82HA Central Office Trunk Card (Belgium)

**System hardware**—All

**Purpose**—The NT5K82HA Central Office Trunk Card provides the interface between the Meridian 1 system and up to eight analog central office (CO) trunks.

**Application**—This card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K82HA card has an on-board 12 kHz PPM pulse detector that counts 50 Hz pulses using external filters.

The NT5K82HA Central Office Trunk Card:

- provides conversion for eight audio paths
- provides software-selectable A-Law and µ-Law operations
- provides indication of board status with faceplate-mounted LED
- provides for disabling of individual units or the entire board under software or XPEC control
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes
- indicates self-test status with faceplate LED
- provides termination impedance to match Belgian complex impedance Z1
- provides transhybrid balance matching against Belgian complex impedance Z1
- provides for loss pads (analog to digital and digital to analog) as per the Belgian loss plan and call path set-up
- meets the Belgian loss plan and provide a base for future loss plan change by use of the B34 Codec with software-selectable loss pads (phase 8B software)

- corrects signaling impedances to operate with the Belgian central office
- supports multifrequency compelled (MFC) signaling when used with the NT5K21 XMFC Sender/Receiver card

## NT5K83AA E&M Tie Trunk Card (Spain/Switzerland)

**System hardware**—All

**Purpose**—The NT5K83AA E&M Tie Trunk supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

Announcement machines supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

**Application**—The NT5K83AA is designed for use in Switzerland. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K83AA E&M Tie Trunk Card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital-to-analog
- provides software-selectable A-Law or µ-Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make break ratios are defined in software and downloaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits

- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K83BA E&M Tie Trunk Card (Denmark)

**System hardware**—All

**Purpose**—The NT5K83BA E&M Tie Trunk supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

The NT5K83BA E&M Tie Trunk provides the choice between the old Danish loss plan and the new Danish loss plan. The old plan is chosen when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is used on the system. The new loss plan is chosen when only intelligent peripheral equipment (IPE) is used.

**Application**—The NT5K83BA is designed for use in Denmark. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K83CA E&M Tie Trunk Card (Norway)

**System hardware**—All

**Purpose**—The NT5K83CA E&M Tie Trunk supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

The NT5K83CA E&M Tie Trunk provides the choice between the old Norwegian loss plan and the new Norwegian loss plan. The old plan is chosen when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is used on the system. The new loss plan is chosen when only intelligent peripheral equipment (IPE) is used.

**Application**—The NT5K83CA is designed for use in Norway. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K83CA E&M Tie Trunk Card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital to analog
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make break ratios are defined in software and down loaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides Paging (PAG), Recorded Announcement (RAN), and Music interfaces

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K83DA E&M Tie Trunk Card (Holland)

**System hardware**—All

**Purpose**—The NT5K83DA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks. Each trunk circuit can be individually configured as:

- 2-wire E&M BPO (Type V)
- 4-wire E&M Type I, Type II, BPO (Type V)
- Cept L1 2280 Hz tie trunk (AC15 signaling in the UK)
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K83DA E&M Tie Trunk Card:

- has four switch settings (one per unit) used to select BPO (Type V) E&M signaling (Phase 8B software allows the signaling to be service changeable through overlay 14, eliminating the need to set the hardware switches.)
- supports wink, immediate start, or delayed dialing signaling

The NT5K83DA E&M Tie Trunk Card supports the following types of announcement machines:

- start mode announcement machines
- continuous mode announcement machines

Recorded announcement machines supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

**Application**—The NT5K83DA is designed for use in Holland. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K83DA E&M Tie Trunk Card:

- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or µ-Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination and transhybrid balance matching against 600 ohms for 2-wire E&M trunk circuits
- provides termination against 600 ohms for 4-wire and CEPT L1 E&M trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K83EA E&M Tie Trunk Card (Australia)

**System hardware**—All

**Purpose**—The NT5K83EA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

**Application**—The E&M trunk card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K83EA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type C2 Earth-off idle (configured as Type 1 in software)
- Recorded Announcement trunk (RAN)
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K83EA E&M Tie Trunk Card:

- downloads transmit and receive losses to the B34 codec
- supports dynamic loss switching on a call-by-call basis
- converts transmission signals from analog to digital and from digital to analog
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card. (make break ratios are defined in software and down loaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides Paging (PAG), Recorded Announcement (RAN), and Music interfaces

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K83FA E&M Tie Trunk Card (Sweden)

**System hardware**—All

**Purpose**—The NT5K83FA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

**Application**—The NT5K83FA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K83FA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 2-wire E&M BPO (Type V)
- 4-wire E&M Type II
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K83FA E&M Tie Trunk Card:

- has four switch settings (one per unit) used to select BPO (Type V) E&M signaling.

  ***Note:*** Systems using Phase 8B or later software can select BPO signaling in overlay 14.

- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or µ-Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination and transhybrid balance matching against Sweden Complex impedance for 2-wire E&M trunk circuits
- provides termination against 600 ohms for 4-wire trunk circuits

- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

## NT5K83GA E&M Tie Trunk Card (Italy)

**System hardware**—All

**Purpose**—The NT5K83GA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

**Application**—It can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K83GA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2
- 2-wire E&M Type 1, 2, and 5 (BPO)
- Recorded Announcement (RAN) trunk
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K83GA E&M Tie Trunk Card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or µ-Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make break ratios are defined in software and downloaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides 600 ohm termination for 2- and 4-wire E&M trunk circuits

- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

## NT5K83HA E&M Tie Trunk Card (Belgium)

**System hardware**—All

**Purpose**—The NT5K83HA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

**Application**—The NT5K83HA can be installed in any PE slot that supports Intelligent Peripheral Equipment (IPE).

The NT5K83HA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 2- and 4-wire E&M Transmission
- Type I, Type II and Type V E&M signaling
- Recorded Announcement (RAN) trunk
- Voice Paging Trunk features

The card supports these features on a per unit basis.

The NT5K83HA E&M Tie Trunk Card:

- provides analog to digital and digital to analog conversion for four audio paths
- allows the trunk type to be configured on a per channel basis
- provides software-selectable A-Law and µ-Law operation
- indicates self-test status with faceplate LED
- provides for disabling of individual units or the entire board under software or XPEC control
- provides outpulsing on the card; the make break ratios are software downloadable in the initial configuration stage
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes

- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides termination and transhybrid balance matching against 600 ohms for 2-wire E&M trunk circuits
- provides a PAG (Voice Paging) interface
- provides a RAN (Recorded Announcement/Music) interface
- provides a Radio Paging interface
- provides flexible transmission for various loss plans
- interfaces each of the four PCM digital signals to one DS30X channel in A10 format
- sends transmit and receive SSD signaling messages over a DS30X signaling channel in A10 format

# NT5K84AA Direct Inward Dial (DID) Trunk Card (Switzerland)

**System hardware**—All

**Purpose**—The NT5K84AA Direct Inward Dial (DID) Trunk Card supports eight analog trunks. Each trunk circuit operates as a DID trunk.

The NT5K84AA DID trunk provides a choice between the old Swiss loss plan and the new loss plan. The old plan is used when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is present on the system. The new loss plan is used when only intelligent peripheral equipment (IPE) is present.

**Application**—The NT5K84AA is designed for use in Switzerland. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Each NT5K84AA DID Trunk Card:

- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the new Swiss loss plan
- provides adjustable transmission pads for long line or short line operation
- provides termination and transhybrid balance impedance to match the Swiss complex impedance network
- provides the correct signaling impedances and voltages to operate with the Swiss central office
- supports multifrequency compelled (MFC) signaling when used with the MFC Sender/Receiver card (NT5K21)

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K84BA Direct Dial Inward (DDI) Trunk Card (Australia)

**System hardware**—All

**Purpose**—The NT5K84BA Direct Dial Inward (DDI) Trunk Card provides the interface between the Meridian 1 system and up to eight analog DDI trunk lines.

**Application**—The direct inward dial trunk card can be installed in any slot that supports intelligent peripheral equipment (IPE).

Each NT5K84BA DDI Trunk Card:

- allows the trunk signaling type to be configured on a per unit basis
- indicates self-test status during an automatic or manual self-test (self-test pass is indicated on the faceplate LED
- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports dynamic loss switching on a call by call basis
- provides termination impedance to match the Australian three-component complex network
- provides transhybrid balance matching against the Australian complex impedance
- provides analog to digital and digital to analog call path losses for DDI trunk units, values downloadable in the initial configuration stage

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K84HA Direct Inward Dial (DID) Trunk Card (Belgium)

**System hardware**—All

**Purpose**—The NT5K84HA Direct Inward Dial (DID) Trunk Card provides the interface between the Meridian 1 system and up to eight analog DID trunk lines.

**Application**—The NT5K84HA can be installed in any slot that supports intelligent peripheral equipment (IPE).

The NT5K84HA supports the Belgian Direct Inward Dialing Signaling protocol.

Each NT5K84HA DID Trunk Card:

- provides analog to digital and digital to analog conversion for eight audio paths
- uses software-selectable A-Law and µ-Law operation
- indicates self-test status with faceplate LED
- provides for disabling of individual units or the entire board under software or XPEC control
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes
- provides termination impedance to match Belgian complex impedance Z1
- provides transhybrid balance matching against Belgian complex impedance Z1
- provides for loss pads (analog to digital and digital to analog) as per the Belgian loss plan and call path setup
- meets the Belgian loss plan and provides a base for future loss plan change by use of the B34 codec with software-selectable loss pads (phase 8B software)
- corrects signaling impedances to operate with the Belgian central office
- supports multifrequency compelled (MFC) signaling when used with the NT5K21 XMFC Sender/Receiver card

# NT5K90AA Central Office Trunk Card (Denmark)

**System hardware**—All

**Purpose**—The NT5K90AA Central Office Trunk Card supports eight analog central office (CO) trunks. It provides:

- loop start operation
- supervised loop start signaling using CO polarity reversals (ARF signaling)
- Direct Inward System Access (DISA), but only when configured in the supervised loop start signaling mode
- a choice between the old Danish loss plan and the new Danish loss plan, depending on the hardware configuration of the system.
- busy tone detection (detection of far end release)
- 12 kHz periodic pulse metering (PPM), also referred to as subscriber pulse metering (SPM)

**Application**—The NT5K90AA is designed for use in Denmark. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K90BA Central Office Trunk Card (Denmark)

**System hardware**—All

**Purpose**—The NT5K90BA Central Office Trunk Card is the same as the NT5K90AA Trunk Card, but does not support periodic pulse metering (PPM) or busy tone detection.

**Application**—The NT5K90BA is designed for use in Denmark. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NT5K92AA Direct Inward Dial Auto Answer Circuit (DID Tester) (Austria/France/Germany/Switzerland)

**System hardware**—All

**Purpose**—The NT5K92AA Direct Inward Dial (DID) Auto Answer Circuit is used to test the condition of the DID lines on a Meridian 1 system. It does the following:

- answers an incoming DID call
- holds the call for a predetermined length of time
- sends tones or remains silent
- disconnects the call

# NT5K93AA Central Office Trunk Card (Norway)

**System hardware**—All

**Purpose**—The NT5K93 Central Office Trunk Card provides the interface between the Meridian 1 system and up to eight analog Central Office (CO) trunks.

**Application**—The NT5K93AA is designed for use in Norway. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K93AA Central Office Trunk Card:

- provides loop start operation
- is equipped with eight trunk units
- allows the trunk type to be configured on a per unit basis
- provides software-selectable A-Law or µ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides a choice between old or new Norwegian loss plans

- provides adjustable transmission pads for long/short line operation
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K93BA Central Office Trunk Card (Norway)

**System hardware**—All

**Purpose**—The NT5K93BA Central Office Trunk Card is the same as the NT5K93AA Central Office Trunk Card, but does not support the periodic pulse metering (PPM) feature.

**Application**—The NT5K93BA is designed for use in Norway. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K93BA Central Office Trunk Card:

- provides loop start operation
- is equipped with eight trunk units
- allows the trunk type to be configured on a per unit basis
- provides software-selectable A-Law or µ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides a choice between old or new Norwegian loss plans
- provides adjustable transmission pads for long/short line operation

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K96JA Flexible Analog Line Card (Denmark)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The NT5K96JA Flexible Analog Line Card is the same as the NT5K02JA line card, but does not have the Message Waiting feature.

**Application**—The NT5K96JA is designed for use in Denmark.

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K96KA Flexible Analog Line Card (Holland)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The NT5K96KA line card is exactly the same as the NT5K02KA Analog line card, but does not support a Message Waiting indicator.

**Application**—The NT5K96KA is designed for use in Holland.

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K96MA Flexible Analog Line Card (Norway)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The NT5K96MA Flexible Analog Line Card is the same as the NT5K02MA line card, but it does not have the Message Waiting feature.

**Application**—The NT5K96MA is designed for use in Norway.

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K96NB Flexible Analog Line Card (Sweden)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The NT5K96NB Flexible Analog Line Card is the same as the NT5K02NB line card, but it does not have the Message Waiting feature.

**Application**—The NT5K96NB is designed for use in Sweden.

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K96SA Flexible Analog Line Card (Spain)

**System hardware**—All systems equipped with a Meridian 1 IPE shelf.

**Purpose**—The NT5K96SA Flexible Analog Line Card is the same as the NT5K02SA line card, but it does not have the Message Waiting feature.

**Application**—The NT5K96SA is designed for use in Spain.

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NT5K99AA/BA Central Office Trunk Card (Spain)

**System hardware**—All

**Purpose**—The NT5K99AA and NT5K99BA Central Office Trunk Cards provide the interface between the Meridian 1 system and up to eight analog central office (CO) trunks. The NT5K99AA card supports internal 12 kHz PPM but the NT5K99BA card does not.

**Application**—On Meridian 1 systems, the central office trunk card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K99AA and NT5K99BA Central Office Trunk Cards:

- provide loop start operation
- provide battery reversal detection
- are equipped with eight trunk units
- allow the trunk type to be configured on a per unit basis
- allow individual units or the entire board to be disabled by software
- provide software-selectable A-Law companding
- indicate self-test status during an automatic or manual self-test
- provide card-identification for auto-configuration and for determining the serial number and firmware level of the card
- convert transmission signals from analog to digital and from digital to analog
- provide 2 dB transmission pads for operation over long or short lines

- provide termination and transhybrid balance impedance to match the Spanish complex impedance network
- provide direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- provide detection and reporting of battery reversals from the central office

## NT6D70BA S/T Interface Line Card (SILC)

**System hardware**—All

**Purpose**—Provides eight S/T four-wire full duplex interfaces that are used to connect ISDN BRI compatible terminals over DSLs to the Meridian 1 system. Each S/T interface provides two B-channels and one D-channel and supports a maximum of eight physical connections that can link up to 20 logical terminals on one DSL. The main functions are to:

- provide eight ISDN S/T interfaces conforming to ANSI, CCITT, INS-NET, and ETSI standards
- support point-to-point and multipoint DSL terminal connections
- execute instructions received from the Meridian 1 CPU to configure and control the S/T interfaces
- provide channel mapping between ISDN Basic Rate format 2B+D and IPE bus format
- multiplex four D-channels onto one 64 kbps network timeslot
- provide 2 watts of power to terminals on a DSL
- support S/Q layer 1 maintenance channels between a terminal and a network terminator
- perform activation and deactivation of DSLs
- provide loopback control of DSLs

The SILC is housed in the IPE module and communicates with the MISP through the peripheral controller card.

**Quantity**—Up to 15 per module. Refer to *ISDN Basic Rate Interface: Product Description* (553-3901-100) for capacity requirements.

# NT6D71 U Interface Line Card (UILC)

**System hardware**—All

**Purpose**—Provides eight two-wire full duplex U interfaces that are used to connect ISDN BRI-compatible terminals over DSLs to the Meridian 1 system. Each U interface provides two B-channels and one D-channel and supports one physical termination. The length of a DSL should not exceed 5þkm (16,404 ft).

The main functions are to:

- provide eight ISDN U interfaces conforming to ANSI standards
- support point-to-point DSL terminal connections
- provide channel mapping between ISDN BRI and IPE bus formats
- support M-channel functions as specified by ANSI standards
- multiplex four D-channels onto one 64 kbps timeslot
- support maintenance information messages
- perform activation and deactivation of DSLs
- provide loopback control of DSLs

The UILC is housed in the IPE module and communicates with the MISP over the peripheral controller card, which is also housed in the IPE Module.

**Quantity**—Up to eight per module. Refer to *ISDN Basic Rate Interface: Product Description* (553-3901-100) for capacity requirements.

## NT6D72 Basic Rate Concentrator Signaling Card

**System hardware**—Options 51C/61C/81C (minimum software Release 18)

**Purpose**—The BRSC processes signaling messages from ISDN BRI line cards and transmits the resulting messages to the MISP. It also separates D-channel Packet Switched Data (DPSD) from signaling information and routes it to the packet handler.

**Quantity**—One per each IPE module with BRI line cards; see *ISDN Basic Rate Interface: Product Description* (553-3901-100) for capacity requirements

## NT7D16 Data Access Card

**System hardware**—All

**Purpose**—Provides interface to up to six data units, or ports, with each port operating in either RS-232-C or RS-422 mode. Used in the system to provide connections for data terminal equipment (DTE) or data communications equipment (DCE) such as terminals, personal computers, modems, and mainframe host computers.

**Quantity**—Up to 16 cards per NT8D37 IPE Module; up to 10 cards per NT8D11 CE/PE Module

## NT7R52 Remote Carrier Interface Card

**System hardware**—Carrier Remote IPE floor-standing module and wall-mounted cabinet

**Purpose**—Provides a primary interface and control function between the NT1R51 Local Carrier Interface Card and the Carrier Remote IPE site. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

**Quantity**—One per NT8D37 IPE Module at the Carrier Remote IPE site

# NT8D01 Controller Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Provides a primary interface and control function between the NT8D04 Superloop Network Card and the IPE Module. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

The NT8D01BC Controller-4 Card (formerly NT8D01BA) interfaces with up to four superloop network cards.

The NT8D01BD Controller-2 Card (formerly NT8D01BB) interfaces with up to two superloop network cards.

**Quantity**—One per NT8D37 IPE Module

# NT8D01AC Controller-4 Card

**System hardware**—All

**Purpose**—Provides a primary interface and control function between the superloop network card and the IPE module over up to four 1.024 Mbps superloops. Each Controller-4 card serves up to 16 IPE cards.

The Controller-4 card interfaces with up to four NT8D04AA Superloop Network Cards. It is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics, thus off-loading the system CPU.

**Quantity**—One per NT8D37 IPE Module

# NT8D01AD Controller-2 Card

**System hardware**—All

**Purpose**—Provides a primary interface and control function between the superloop network card and the IPE module over up to two 10.24 Mbps superloops. Each Controller-2 card serves up to 16 IPE cards.

The Controller-2 card interfaces with up to two NT8D04AA Superloop Network Cards. It is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics, thus off-loading the system CPU.

**Quantity**—One per NT8D37 IPE Module

# NT8D02 Digital Line Card

**System hardware**—All

**Purpose**—Provides interface to up to 16 digital integrated voice and data sets for a total of 32 ports. It is equipped with an 8051-family microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

See *Line Cards: Description* (553-3001-105) for more details.

**Quantity**—Up to 16 cards per NT8D37 IPE Module; up to 10 cards per NT8D11 CE/PE Module

# NT8D03 Analog Line Card

**System hardware**—All

**Purpose**—Replaced by NT8D09 Analog Message Waiting Line Card as of January 1992.

Provides interface to up to 16 analog telephones (500/2500). It is equipped with an 8051-family microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

**Quantity**—Up to 16 cards per NT8D37 IPE Module; up to 10 cards per NT8D11 CE/PE Module

# NT8D09 Analog Message Waiting Line Card

**System hardware**—All

**Purpose**—Provides interface to up to 16 analog telephones (500/2500) with Message Waiting lamp feature. It is equipped with an 8051-family microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

See *Line Cards: Description* (553-3001-105) for more details.

**Quantity**—Up to 16 cards per NT8D37 IPE Module; up to 10 cards per NT8D11 CE/PE Module

# NT8D14 Universal Trunk Card

**System hardware**—All

**Purpose**—Provides interface to up to eight trunk facilities in A-Law or µ-Law applications. Each trunk unit is independently configured to operate as a:

- central office (CO), foreign exchange (FX), or wide area telephone service (WATS) trunk
- direct inward dialing (DID) trunk
- two-way tie trunk
- Recorded Announcement (RAN) trunk
- Paging trunk

Each unit also provides the following signaling operation:

- ground start (CO/FX/WATS trunks)
- loop start (CO/FX/WATS trunks) (minimum vintage BA)
- loop dial repeating (DR) (DID and two-way tie trunks)
- loop outgoing automatic, incoming dial (OAID) (two-way tie trunks)
- continuous operation, pulse start, or level start (RAN trunks)

Trunk unit termination and balance impedance is selectable to 600 or 900 ohms, and balance or complex: 3COM1 or 3COM2 (minimum vintage BA for 3COM2).

The universal trunk card also supports Music, Automatic Wake Up, and Direct Inward System Access (DISA) features.

The card is equipped with a microprocessor that performs functions including:

- control of card operation
- card identification
- self-test

- status reporting to the controller
- maintenance diagnostics

The card complies with CSA Standard C82.2 No. 0.7-M1985 and EIA Standard 464A.

See *Trunk Cards: Description* (553-3001-106) for more details.

**Quantity**—One per eight trunks; up to 16 cards per NT8D37 IPE Module; up to ten cards per NT8D11 CE/PE Module

## NT8D15 E&M Trunk Card

**System hardware**—All

**Purpose**—Provides interface to up to four analog trunk facilities in A-Law and µ-Law applications. Provides interface connecting the trunk facility to the NT8D37 IPE Module. Each trunk unit is individually configured to operate as:

- two-wire E&M Type I signaling trunk
- four-wire E&M trunk
  - — Type I or Type II signaling
  - — Duplex (DX) signaling
- paging trunk

The card is equipped with a microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

The card complies with CSA Standard C82.2 No. 0.7-M1985 and EIA Standard 464A.

See *Trunk Cards: Description* (553-3001-106) for more details.

**Quantity**—One per four trunks; up to 16 cards per NT8D37 IPE Module; up to ten cards per NT8D11 CE/PE Module.

**Application**

- NT8D15AA µ-Law only
- NT8D15AF µ-Law/A-Law software-selectable

## NT8D16 Digitone Receiver Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Provides eight channels of dual tone multifrequency (DTMF) detection. These channels are assigned on the DS30X loop. There is one 8 kbps signaling channel provided for maintenance messaging and tone reporting.

The NT8D16 Digitone Receiver Card allows access to the filters for parameter alterations to service different environments (for example, international applications).

**Quantity**—See *System Engineering* (553-3001-151) for engineering details.

## NT9C14AA CO/FX/WATS Trunk Card

**System hardware**—All

**Software generic**—All

**Purpose**—Same as QPC527 but the output PAD value has been altered for the China market.

# NTAG03AA Central Office Trunk Card (Holland)

**System hardware**—All

**Purpose**—Provides the interface between the Meridian 1 system and up to eight analog central office (CO) trunks.

**Application**—The NTAG03AA is designed for use in Holland. On Meridian 1 systems, it can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NTAG03AA Central Office Trunk Card:

- supports A-type signaling and 50 Hz periodic pulse metering (PPM) detection
- receives tone detection information from the tone detector card
- provides busy tone detection (far end release)
- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 600 ohm terminating impedance in compliance with regulatory Holland standards
- provides complex balance impedance in compliance with regulatory Holland standards

**Quantity**—Up to 16 cards per NT8D37 IPE Module

# NTAG04AA Central Office/Direct Inward Dial Trunk Card (Holland)

**System hardware**—All

**Purpose**—Provides the interface between the Meridian 1 system and up to eight analog trunks. The NTAG04AA CO/DID Trunk Card has eight units, each of which can be individually configured as:

- central office incoming/outgoing trunk
- direct inward dial/direct outward dial trunk

**Application**—The NTAG04AA is designed for use in Holland. On Meridian 1 systems, it can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NTAG04AA CO/DID Trunk Card:

- supports ALS B1 and B2 signaling and 50 Hz periodic pulse metering (PPM) detection
- detects the polarity of the central office line
- detects incoming digipulses and sends a message to the central processing unit (CPU) for each digit
- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 600 ohm terminating impedance in compliance with regulatory Holland standards
- provides complex balance impedance in compliance with regulatory Holland standards

**Quantity**—Up to 16 cards per NT8D37 IPE Module

## NTAG26 Enhanced Multi-frequency Receiver

**System hardware**—Options 51C/61C/81C

**Purpose**—The NTAG26 Enhanced Multi-frequency Receiver (XMFR) receives MF digit information from the Central Office. This MF feature allows the Meridian 1 system to receive 911 and feature group D applications. The XMFR has four ports, and operates only in systems using *u*-low compounding.

**Quantity**—One per IPE module

## NTAG36 Meridian Integrated RAN (MIRAN)

**System hardware—**Options 11C/51C/61C/81C and all systems equipped with a Meridian 1 IPE shelf and software Release19 or later software.

**Purpose**—The MIRAN card provides up to eight internal, one-to-one ports and two external, multi-cross-connect ports to support Recorded Announcement (RAN) and Music On Hold (MOH) applications. Each multi-cross-connect port can connect to a maximum of 16 external EXUT/XFEM ports to provide the same announcement on a number of channels. For systems with Release 23 or later software and the RAN Broadcast feature, each of the internal ports with built-in trunk emulation can support up to 30 callers hearing the same RAN message.

The MIRAN card emulates the NT8D14BA vintage or greater Enhanced Universal Trunk (EXUT) circuit card. The MIRAN emulates any DS-30X signaling protocol, including TCM signaling, to be compatible with existing and future terminals and consoles. In addition, MIRAN provides access to any one of the 32 voice channels on a DS-30X loop for both voice and data applications.

The original MIRAN card (NTAG36AA), upgraded to MIRAN Release 2.0 software, provides the following RAN/Music functionality:

- Easily expandable, industry-standard architecture (small, medium, and large configuration controlled by keycode)
- Simplicity of the basic system (no external devices or cables required)
- A set of both standard and proprietary interfaces

- Embedded real-time operating system
- Support for CE-MUX and Card-LAN interfaces
- Up to eight channels of RAN or Music directly
- Up to 40 channels of RAN or Music using the two cross-connect ports connected to external EXUT or XFEM ports
- 366 day calendar allowing the assigning of different messages to a particular channel based on time of day, day of week, and day of year
- Password protected RAN recording and channel assignment from any DTMF telephone using a simple voice menu interface
- Passwords for individual channels
- Professional recordings of RAN and MOH that are supplied on PCMCIA Flash cards and can be instantly installed
- Swapping of recordings between “in-service” and “in-reserve” using any telephone set
- Full flexibility in length of recordings up to storage limits
- A minimum of eight minutes of recording capacity on the base card
- Additional recording capacity available through PCMCIA ATA Flash cards
- Two external analog inputs to allow access to and uploading of additional recordings
- Message backup and restore capability
- An emergency signal using software to replace existing message(s)
- Six minutes of pre-recorded copyright free music for turn key MOH

The new MIRAN card (NTAG36AB) contains an Ethernet port and provides the following *additional* functionality:

- Embedded web server for point-and-click access to MIRAN features and multiple MIRAN cards
- FTP download of voice and music.WAV files
- Automatic time and date synchronization with the Meridian 1 system
- Access to on-line Nortel Networks technical publications

For more information on the NTAG36 Meridian 1 Integrated RAN card, please refer to *Meridian 1 Integrated RAN: Description, Installation, and Operation* (553-3001-112) for more details.

## NTBX80AA ISDN Network Termination Unit (NT1)

**System hardware**—All

**Purpose**—The NT1 is the link between the central office equipment and the customer premises equipment in the ISDN. The NT1 is located at the customer premises, and supports ISDN Basic Rate Interface (BRI) service by providing two ANSI-standard interfaces:

- the subscriber loop (U loop), which connects the NT1 to the network
- the customer interface bus (S/T bus), which connects the NT1 to the customer's terminal equipment

**Application**—The NTBX80AA contains one stand-alone NT1 unit and is typically wall- or desk-mounted at the user's workstation. The stand-alone version has an optional companion power supply that converts AC power to the –48 V dc used by the NT1 unit.

## NTBX84AA/BA Rack mount NT1 Card—Basic/Enhanced

**System hardware**—All

**Purpose**—The NT1 is the link between the central office equipment and the customer premises equipment in the ISDN. The NT1 is located at the customer premises, and supports ISDN Basic Rate Interface (BRI) service by providing two ANSI-standard interfaces:

- the subscriber loop (U loop), which connects the NT1 to the network
- the customer interface bus (S/T bus), which connects the NT1 to the customer's terminal equipment

**Application**—The NTBX84AA/BA NT1 Basic Card provides card status indication to the NT1 module as follows:

- test status of NT1
- status of frame synchronization on U interface
- status of frame synchronization on S/T interface

- S/T loop power overload

The NTBX84AA/BA NT1 Enhanced card provides optional star bus configuration on the S/T interface. Two independent outputs provide mixed bus configurations and/or maximum loop reach to two user locations via one U loop.

## NTCK16 Generic Central Office Trunk Card

**System hardware**—All

**Purpose**—The generic central office trunk card comes in two versions: A*x* and B*x*

The NTCK16A*x* and NTCK16B*x* Generic Central Office Trunk Cards support up to eight analog central office trunks. The NTCK16A*x* card supports internal 12/16 kHz PPM but the NTCK16B*x* card does not.

**Application**—The NTCK16 Generic Central Office Trunk Card has eight units and does the following:

- supports the North American loss plan
- supports loop start signaling
- supports busy tone detection and supervision on a per unit basis.
- supports battery reversal detection
- provides 4 dB dynamic attenuation pads on a per call basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or µ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides termination and transhybrid balance impedance to match 600 ohms

On Meridian 1 systems, the generic central office trunk card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NTCK16AA, BA, AX, and BX Generic Central Office Trunk Cards operate in the following countries:

- Brazil
- Ireland
- Mexico
- Singapore
- Tortola

The NTCK16AD and BD Generic Central Office Trunk Cards operate in the following countries:

- Argentina
- Bahrain
- Chile
- Egypt
- Indonesia
- Korea
- Kuwait
- Lebanon
- Taiwan
- Thailand
- Turkey
- Venezuela

# NTCK18AA Central Office Trunk Card (Italy)

**System hardware**—All

**Purpose**—The NTCK18AA Central Office Trunk Card provides the interface between the Meridian 1 system and up to eight analog central office (CO) trunks.

**Application**—On Meridian 1 systems, the NTCK18AA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NTCK18AA Central Office Trunk Card:

- is equipped with eight trunk units
- supports internal 12 kHz periodic pulse metering (PPM)
- allows the trunk type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or µ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- supports the old and new Italy loss plans
- provides adjustable transmission pads for long or short line operation
- provides termination and transhybrid balance impedance to match the Italian complex impedance network
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format.
- supports loop start signaling
- provides a software-selectable loss plan that allows a choice of either the old or new Italian loss plan
- supports busy tone detection and supervision on a per unit basis

# NTCK22AA Direct Inward Dial Trunk Card (Italy)

**System hardware**—All

**Purpose**—The NTCK22AA Direct Inward Dial (DID)/Tie Trunk Card provides the interface between the Meridian 1 system and up to eight analog DID/Tie trunk lines.

**Application**—On Meridian 1 systems, the NTCK22AA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

Each NTCK22AA Trunk Card:

- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the old and new Italian loss plans
- supports 2-wire loop dial repeating for tie trunk application
- provides software-selectable A-Law and µ-Law companding
- provides faceplate LED for board status and selftest pass
- provides disabling of individual units or the entire board
- provides switch-selectable transhybrid balance impedance to match 600 ohm/Italian complex impedance
- provides the correct signaling impedance and voltages to operate with the Italian central office
- offers full transmission compliance to current Italian technical requirements

## NTCK90 Companion Meridian 1 Controller Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Provides a primary interface and control functions between the Meridian 1 and the Companion Radio and Companion Line cards. It also provides ports to base stations.

The Companion Meridian 1 Controller Card (CMCC) must be in the left-most position in the module with respect to the expansion CMRC and CMLC cards. All Companion cards must be installed contiguously in the module.

Each CMCC requires an NTCK94 ROM card that is installed onto the CMCC card.

**Quantity**—One per CE/PE or IPE module

## NTCK91 Companion Meridian 1 Radio Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Provides interfaces for 16 Companion base stations and 16 users. Up to 15 cards can be supported.

**Quantity**—One to nine Companion Meridian 1 Radio Cards (CMRC) per CE/PE module and one to fifteen per IPE module

## NTCK93 Companion Meridian 1 Line Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Provides interfaces for 16 Companion base stations and 16 users. Up to 15 cards can be supported.

**Quantity**—One to nine Companion Meridian 1 Line Cards (CMLC) per CE/PE module and one to fifteen per IPE Module

## NTCW00AB DECT Mobility Card

**System hardware**—Options 51C/61C/81C

**Purpose**—The NTCW00AB DMC8 DECT Mobility Card provides an interface between the Meridian 1 and the base stations. A DMC8 supports up to eight base stations.

**Quantity**—One to fifteen DECT Mobility Cards (DMC8) per IPE Module

## NTCW01AB DECT Mobility Card-Expander

**System hardware**—Options 11C/11E/51C/61C/81C

**Purpose**—The NTCW01AB DMC8-E DECT Mobility Card-Expander provides the same functions as a DMC. The DMC8-E has additional circuitry required to regenerate faceplate cable signals when a system contains more than eight DMC8s. The DMC8-E also connects two IPE shelves or cabinets in a DECT system.

**Quantity**—One DECT Mobility Card (DMC8-E) per IPE Module

## NTCW80 Meridian Integrated IP Telephony Gateway (ITG) Card

**System hardware**—Options 11C, 11E, 51C, 61C,and 81C systems running software Release 21 or later software.

**Purpose**— The Meridian Integrated IP Telephony Gateway (ITG) card compresses Pulse Code Modulation (PCM) voice, demodulates Group 3 fax, and routes the packetized data over a private internet, or intranet, to provide non-ISDN tie trunks between Meridian 1 Electronic Switched Network (ESN) nodes.

The ITG card supports standard H.323 call processing and ITU standard Digital Signal Processor (DSP) voice coding and compression algorithms (codecs), such as G.711, G.723, G.729AB, and G.729B. It supports real-time Group 3 fax support, Call Detail Recording (CDR), and Least Cost Routing.

A key feature of ITG is the ability to monitor the data network and automatically re-route calls to circuit-switched voice facilities if quality of service over the data network declines. This *Fallback to Conventional Circuit-Switched Voice Facilities* feature allows the system and craftsperson to determine what is the acceptable quality of service over the data network. The customer can configure quality of service parameters as required. If the quality falls below the expected level of quality of service, the regular circuit-switched route is selected until the quality of service is back to the acceptable level.

The NTCW80 ITG card supports eight voice channels (trunk ports) per card and emulates an NT8D14 Universal Trunk (EXUT) card. The amount of ports supported on a card is controlled by a keycode.

For more information, refer to *Meridian 1 Integrated Telephony Gateway Trunk 1.0/Basic Per-Trunk Signaling: Description, Installation, and Operation* (553-3001-116).

**Quantity**—One or more per IPE module. Each card uses two card slots.

# QPC71 E&M/DX/Paging Trunk Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Used in µ-Law applications in one of the following ways to interface with appropriate types of trunk facilities:

- E&M signaling, 2-way dial repeating trunk
- 2-wire DX signaling, 2-way dial repeating trunk
- 4-wire DX signaling, 2-way dial repeating trunk (a 24V4 repeater, externally mounted, converts the trunk from 2- to 4-wire)
- paging trunk or externally mounted loudspeaker

Each card contains two separate, identical trunk circuits. Trunk usage option is selected by switches on the circuit card.

See *Trunk Cards: Description* (553-3001-106) for more details.

***Note:*** Minimum vintage F is required.

**Quantity**—One per two trunk circuits

# QPC250 Release Link Trunk Card

**System hardware**—Options 51C/61C/81C

**Software generic**—

**Purpose**—Used to interface a remote system, arranged for the Centralized Attendant Service (CAS) option, with the main system where the CAS attendant is located.

The card contains two separate, identical trunk circuits, with balanced terminating impedance of 900 ohms.

Vintage C and later complies with CSA standard C22.2 No 0.7-M1985.

See *Trunk Cards: Description* (553-3001-106) for more details.

***Note:*** Minimum vintage B is required.

**Quantity**—One per two release line trunks

## Meridian 1QPC297 Attendant Console Monitor Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Interfaces attendant consoles (including add-on modules) when the supervisory console feature is used. Allows the supervisory attendant to monitor calls being handled by attendants within the customer group.

**Quantity**—One per Attendant console in systems using the Supervisory Console feature.

## QPC311 Data Line Card

**System hardware**—All

**Software generic**—All

**Purpose**—This line card is required to interface the Meridian 1 to add-on data modules and other data equipment used in µ-Law applications.

See *Meridian Data Services: Description* (553-2731-100) for application details.

## QPC327 MFC Sender/Receiver Card

**System hardware**—All

**Software generic**— with supplementary features

**Purpose**—This card is used to provide the exchange of information between the Meridian 1 and other exchanges using multifrequency compelled (MFC) signaling protocol. The QPC327 may be used with either A-Law or µ-Law applications.

## QPC341 Data Line Card

**Purpose**—Same as QPC311 but for A-Law applications.

## QPC343 Ground Button Recall Line Card

**Purpose**—Superseded by QPC532.
Allows 500/2500-type sets equipped with a ground button to access special features in A-Law Applications.

## QPC353 Modem Pool Line Card

**System hardware**—All

**Software generic**—All

**Purpose**—Interfaces to outbound asynchronous modems used in asynchronous modem pool configurations.

## QPC354 Modem Pool Line Card

**Purpose**—Same as QPC353 for Meridian 1 using A-Law.

## QPC390 Pulsed E&M Trunk Card

**System hardware**—All

**Software generic**—

**Purpose**—This trunk provides the appropriate interface between the Meridian 1 and public exchanges that use timed pulses for trunk signaling in A-Law applications.

## QPC391 Pulsed E&M Trunk Card

**Purpose**—Same as QPC390 for µ.-law applications.

## QPC397 MCDS Asynchronous Card

**System hardware**—All

**Software generic**—All

**Purpose**—Equivalent to four QMT8 ADM. Refer to *Meridian Data Services: Description* (553-2731-100).

## QPC422 Tone Detector Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Identifies tones and reports to CPU appropriately. Each card contains two tone detector circuits controlled by two microprocessors.

**Quantity**—One per system

# QPC430 Asynchronous Interface Line Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Provides four asynchronous line ports. Used in the SL-1 Data Feature to interface to data equipment conforming to the EIA RS-422 standard. See *Meridian Data Services: Description* (553-2731-100) for more information.

Vintage C or greater is required for the Computer PBX Interface (CPI) application.

Vintage E is required for Host Mode operation.

For system options, QPC430F or later vintage is required.

**Quantity**—One per four data lines

# QPC432 4-Port Data Line Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Provides four data-only ports for the SL-1 Data Feature. See *Meridian Data Services: Description* (553-2731-100) for more information.

***Note:*** Minimum vintage C is required.

**Quantity**—One per four data ports

# QPC449 Loop Signaling Trunk Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Interfaces the following 600- or 900-ohm trunks in µ-Law applications:

- direct inward dialing (DID)
- 2-way tie, dial repeating (2DR)
- 2-way tie, outgoing automatic incoming dial (OAID)
- outgoing automatic number identification (OANI)

The card contains four separate identical trunk circuits. The trunk usage option is selected by switches on the circuit card.

Vintage B and later complies with CSA standard C22.2 No 0.7-M1985.

See *Trunk Cards: Description* (553-3001-106) for more details.

**Quantity**—One per four loop signaling trunks

# QPC450 CO/FX/WATS Trunk Card

**System hardware**—All

**Purpose**—Supersedes the QPC217/218/219/272. Interfaces four 600- or 900-ohm CO, FX, or WATS trunks with the system in µ-Law applications. The card can also detect ringing on either the tip or ring leads and has a provision to extend the normal loop range from 1200 to 2600 ohms using balanced battery boost from the central office.

The card contains four separate identical trunk circuits. The trunk usage option is selected by switches on the circuit card.

Vintage D and F and later complies with CSA standard C22.2 No 0.7-M1985.

***Note:*** For system options, QPC450E or later vintage is required.

See *Trunk Cards: Description* (553-3001-106) for more details.

**Quantity**—One per four CO/FX/WATS trunks

# QPC451 SL-1 Set Line Card

**System hardware**—All

**Software generic**—All

**Purpose**—Interfaces SL-1 telephone sets and attendant consoles, including expansion modules, with the Meridian 1 for µ-Law applications.

**Features**—Eight separate, identical line circuits on each card that can be assigned to different customers. Two line circuits are used for each attendant console. Two additional line circuits can be used for console power. Vintage B is required for consoles.

If the Supervisory Attendant feature (Generic X37) is equipped, a QPC297 card is used in place of the QPC451 to interface with attendant consoles.

# QPC494 500/2500 Line Card (Message Waiting)

**System hardware**—All

**Software generic**—

**Purpose**—Supersedes the QPC267. Used in NT8D37 IPE Modules to interface analog telephone lines with the system in µ-Law applications. The card is also used to interface with other standard 500-type telephone apparatus such as NE-1A2 key telephone equipment, telephone answering sets, and modems. Includes circuitry for the Message Waiting feature.

The card contains eight identical units for interfacing with eight line facilities. Each unit provides the following features:

- interface to 500-type (rotary dial) or 2500-type (Digitone dial) telephones or to key telephone equipment
- 600-ohm balanced terminating impedance on the loop tip and ring leads
- –48 V through a battery feed resistance and ground
- on hook and off hook status detection
- ringing current to the loop

See *Line Cards: Description* (553-3001-105) for more details.

**Quantity**—Maximum of ten cards per NT8D13 PE Module

## QPC512 Personal Computer Interface Card

**System hardware**—All

**Software generic**—All

**Purpose**—Used in the Data Feature to interface the Meridian 1 to an IBM Personal Computer or IBM Personal Computer XT. Refer to *Meridian Data Services: Description* (553-2731-100).

## QPC520 SL-1 Line Card

**System hardware**—All

**Software generic**—All

**Purpose**—Replaces the QPC519. Interfaces SL-1 telephone sets and attendant consoles to Meridian 1, including expansion modules, for A-Law applications.

**Features**—Eight separate, identical line circuits on each card that can be assigned to different customers.

If the Supervisory Attendant feature (Generic X37) is equipped, a QPC342 card is used in place of the QPC520 to interface with attendant consoles.

## QPC521 500/2500 Line Card

**System hardware**—All

**Software generic**—All

**Purpose**—Interfaces on- or off-premises manual, rotary, or Digitone dial 2-wire telephone sets (NE-500 or -2500 sets) with the Meridian 1 in A-Law applications. The card is also used to interface with other standard 500-type telephone apparatus such as NE-1A2 key telephone equipment, telephone answering sets, and modems. Refer to *Line Cards: Description* (553-3001-105).

**Features**—Accommodates eight identical line circuits that can be assigned to one or different customers. The loop range from the PE shelf to the set is 1000 ¾ maximum (excluding the set).

## QPC525 CO/FX/WATS Trunk Card with PPM

**System hardware**—All

**Software generic**—All

**Purpose**—Same as QPC450 but includes a daughterboard for periodic pulse metering (PPM) applications.

## QPC526 CO/FX/WATS Trunk Card with PPM

**System hardware**—All

**Software generic**—All

**Purpose**—Same as QPC525 but for A-Law applications.

## QPC527 CO/FX/WATS Trunk Card

**System hardware**—All

**Software generic**—All

**Purpose**—Same as QPC450 but for A-Law applications.

## QPC528 CO/FX/WATS Trunk Card

**System hardware**—All

**Software generic**—All

**Purpose**—Same as QPC450 but all circuits meet EIA standards.

## QPC532 Ground Button Recall Line Card

**System hardware**—All

**Software generic**—All

**Purpose**—Supersedes the QPC302 and QPC343. Allows 500/2500-type sets equipped with a ground button to use this button to access special features in A-Law or µ-Law applications. Refer to *Line Cards: Description* (553-3001-105) for more details.

## QPC540 Dial Tone Detector

**System hardware**—All

**Software generic**—X08

**Purpose**—For operation in the Swiss environment. It provides identification of dial tones and the rejection of busy tone.

**Features**—Each card contains two separate tone detector circuits.

## QPC550 DID Trunk Card

**System hardware**—All

**Software generic**—X08

**Purpose**—For operation in the Swiss environment. It interfaces with 600 or 900 ¾ trunks.

**Features**—Each card contains four separate trunk circuits.

## QPC551 Radio Paging Trunk Card

**System hardware**—All

**Software generic**—X08

**Purpose**—This trunk circuit provides an interface between the Meridian 1 and the Hasler DS-2000 Radio Paging system.

**Features**—Each card contains two separate trunk circuits.

## QPC558 Message Waiting Line Card

**Purpose**—Same as QPC494 for Meridian 1 using A-Law.

## QPC559 Loop Signaling Trunk Card

**Purpose**—Same as QPC449 for Meridian 1 using A-Law.

## QPC560 Loop Signaling Trunk Card

**Purpose**—Same as QPC449, with all circuitry conforming to EIA standards.

## QPC574 Digitone Receiver

**System hardware**—All

**Software generic**—All

**Purpose**—Supersedes the QPC79. Converts multifrequency dialing signals from a Digitone station to DC pulses suitable for processing in the system control in µ-Law applications. Refer to *System Engineering* (553-3001-151) for calculation of quantity required.

**Features**—Differentiates between valid DIGITONE signals and speech or noise without using out-of-band signals. Two receivers are available on each card. Only one port can be accessed when this card is installed in a single density shelf.

# QPC577 Digitone Receiver Daughterboard (µ-Law)

**System hardware**—All

**Software generic**—All

**Purpose**—The QPC577 Digitone Receiver Daughterboard is a double-sided printed circuit board that must be mounted on a QPC659 Dual Loop Peripheral Buffer. It performs the same functions as the stand alone QPC595 DTR.

**Features**—The QPC577 reroutes dial tone to and receives Digitones from up to two Digitone telephones simultaneously. It converts the received Digitones into digital outputs suitable to the Meridian 1.

**Quantity**—One per QPC659 Dual Loop Peripheral Buffer

# QPC578 Integrated Services Digital Line Card

**System hardware**—Options 51C/61C/81C (minimum vintage B is required for RPE)

**Purpose**—Interfaces the digital telephones and the associated ASCII terminals on time compression multiplexing (TCM) loops to the system. Each card contains 16 separate line circuits, eight data circuits, and eight voice circuits.

See *Line Cards: Description* (553-3001-105) for more details.

**Quantity**—One per eight digital telephones

# QPC594 500/2500 Line Card

**System hardware**—Options 51C/61C/81C

**Purpose**—Allows for 16 circuits per card (quad density) using µ-Law.

**Quantity**—One per 16 500/2500 lines

# QPC595 Digitone Receiver

**System hardware**—All

**Software generic**—All

**Purpose**—Supersedes the QPC79. Converts multifrequency dialing signals from a Digitone station to DC pulses suitable for processing in the system control in A-Law applications. Refer to *System Engineering* (553-3001-151) for calculation of the quantity required.

**Features**—Differentiates between valid Digitone signals and speech or noise without using out-of-band signals. Two receivers are available on each card.

# QPC596 Digitone Receiver Daughterboard (A-Law)

**System hardware**—All

**Software generic**—All

**Purpose**—The QPC596 Digitone Receiver Daughterboard is a double-sided printed circuit board that must be mounted on a QPC659 Dual Loop Peripheral Buffer. It performs the same functions as the stand-alone QPC595 DTR.

**Features**—The QPC596 reroutes dial tone to and receives Digitones from up to two Digitone telephones simultaneously. It converts the received Digitones into digital outputs suitable to the Meridian 1.

**Quantity**—One per QPC659 Dual Loop Peripheral Buffer

# QPC650 Music Trunk Card (µ-Law)

**System hardware**—All

**Software generic**—X08, Release 9 and later

**Purpose**—Consists of analog to digital converters to provide music and recorded announcements in addition to the tones and cadences available from the ATDS. Provides up to eight channels of digital data to ATDS when installed in a dual-density PE shelf and up to four channels when installed in a single-density PE shelf. Works with QPC606 ATDS.

**Quantity**—One per ATDS

# QPC651 Music Trunk card (A-Law)

**System hardware**—All

**Software generic**—X08

**Purpose**—Consists of analog to digital converters to provide music and recorded announcements in addition to the tones and cadences available from the ATDS. Provides up to eight channels of digital data to ATDS when installed in a dual-density PE shelf and up to four channels when installed in a single-density PE shelf. Works with QPC605, QPC607, or QPC608 ATDS.

**Quantity**—One per ATDS

# QPC659 Dual Loop Peripheral Buffer Card

**System hardware**—Options 51C/61C/81C )

**Purpose**—Interfaces one or two network loops. Also, a Digitone daughterboard can be installed on the peripheral buffer and is used to convert multifrequency dialing signals from a Digitone station to DC pulses suitable for processing in the system control.

**Quantity**—Up to ten per NT8D13 PE Module or one per dual loop shelf.

# Station equipment

## Content list

The following are the topics in this section:

Reference list . . . . . 144
M2000 Series Meridian Digital Telephones . . . . . 145
M2250 Attendant Consoles . . . . . 147
500/2500 telephones . . . . . 147
C3050 and C3060 Portable Handsets . . . . . 147
C4010, C4010 Ex, and C4020 Meridian Companion DECT Handsets . . 148
C4050 Meridian Companion DECT Handset . . . . . 148
Companion base station . . . . . 148
M7310 Companion administration terminal . . . . . 149
Meridian DECT Companion 4600 base station . . . . . 149
Meridian DECT Companion 4610 base station . . . . . 149
QMT11 Asynchronous/Synchronous Interface Module . . . . . 149
QMT12 Add-on Data Module . . . . . 150
NT1F09 Asynchronous data option . . . . . 150
NE-G3QDRNC Attendant Handset Assembly . . . . . 150
NT3G30 Console Adjustable Stand . . . . . 150
NT3G40 Console Graphics Module/Busy Lamp Field . . . . . 151
NT2K69 Meridian Communications Adapter . . . . . 151

# Reference list

The following are the topics in this section:

- *Attendant Consoles: Description* (553-2201-117)
- *Meridian Data Services: Description* (553-2731-100)
- *Meridian 1 Telephones: Description and Specifications* (553-3001-108)

# M2000 Series Meridian Digital Telephones

M2000 Series Meridian Digital Telephones provide integrated voice and data communication capability. The following M2000 Series Meridian Digital Telephones are available:

- **M2006**—A single-line telephone with six programmable keys.
- **M2008**—A multi-line telephone with eight programmable keys.
- **M2616**—A high-performance multi-line telephone with 16 programmable keys and an integrated handsfree unit.
- **M2016S**—A Telephone Security Group Class II approved telephone designed to provide on hook security. It is similar to the M2616, with 16 programmable keys, but has no handsfree capability.
- **M2216ACD**—A multi-line telephone for ACD operations. It has 15 programmable function keys, an ACD Display Module, and two RJ-32 jacks for modular electret headsets.

The following hardware options can be added to M2000 Series Meridian Digital Telephones:

- External Alerter Interface Board
- Display Module
- Meridian Communications Adapter (MCA)
- Analog Terminal Adaptor
- Key Expansion Module

See *Meridian 1 Telephones: Description and Specifications* (553-3001-108) for additional information.

The Meridian M2317 has 17 keys:

- 11 programmable keys
- one key to control the built-in handsfree feature
- five softkeys that are programmable for software features

An asynchronous data option circuit board and data option power supply are available for connecting data terminals to the M2317 telephone. Table 4 on page 146 lists the ordering codes for the M2317 telephone alone and with hardware options installed.

**Table 4**
**Order codes for M2317 telephones and options**

| Description | Ordering code |
|---|---|
| M2317 digital display telephone, black | NT1F21AE-03 |
| M2317 digital display telephone, chameleon ash | NT1F21AE-35 |
| M2317 digital display telephone, dolphin gray | NT1F21AE-93 |
| M2317 digital display telephone (with ADO), black | NT1F21ME-03 |
| M2317 digital display telephone (with ADO), chameleon ash | NT1F21ME-35 |
| M2317 digital display telephone (with ADO), dolphin gray | NT1F21ME-93 |
| M2317 telephone power supply | A0336406 |
| Multioutput data power supply | A0336823 |
| Data option circuit board, asynchronous | NT1F09AC |

## M2250 Attendant Consoles

The Meridian Attendant Console allows the customer to make full use of all the attendant features and services offered by the Meridian 1 system.

The Meridian attendant console has a four-line (40 characters per line) liquid crystal display (LCD) with backlighting and adjustable viewing angle. The M2250 is driven and powered by a digital line card and has a modified cabling scheme.

See *Attendant Consoles: Description* (553-2201-117) for additional information.

## 500/2500 telephones

Single-line 500-type rotary dial telephones and 2500-type Digitone push-button dial telephones can be used with Meridian 1.

Standard 48V talk battery and 20Hz ringing voltage are available so that conventional equipment such as answering machines, dictation machines, data sets, modems, and key telephones can be used.

If the Message Waiting lamp feature is required, use NE-500YR or NE-2500YQA telephones.

## C3050 and C3060 Portable Handsets

The C3050 and C3060 are portable wireless telephones that are used to communicate over the Companion base station with the Companion Meridian 1 Controller Card (CMCC).

The handset provides:

- two-line alphanumeric LCD with status icons
- adjustable ringer type
- adjustable volume

## C4010, C4010 Ex, and C4020 Meridian Companion DECT Handsets

The Meridian DECT Companion C4010 portable wireless handset is the base model. The Meridian DECT Companion C4010 Ex and Meridian DECT Companion C4020 portable wireless handsets have additional features or features that are different from the Meridian DECT Companion C4010 model. The Meridian DECT Companion C4010 Ex design allows it to operate safely in an explosive atmosphere. The Meridian DECT Companion C4020 can accept a headset and has a vibrate alert feature.

## C4050 Meridian Companion DECT Handset

The Meridian DECT Companion C4050 portable wireless handset is the high end model.

## Companion base station

The base station is a dual-radio transceiver. It provides the link between the portable handsets and the Companion controller card (CMCC). Each base station supports up to two simultaneous calls and provides the option of loop powering over a remote power interconnect (RPI) unit.

To operate the base station, the appropriate selection of the following components must be used. The selection depends on the base station site application:

- A plug-top power supply for local external AC power source or a remote power interconnect (RPI) for line powering of the base station.
- Indoor omnidirectional antenna R1636 is recommended when reception is required all around the antenna.
- Indoor directional antenna J7527 is recommended when the transmission is in a single direction.
- Antenna protection device used to suppress current surges of 50,000 amps.

- Outdoor omnidirectional antenna R1630 is recommended when the transmission coverage is required outside the building. A 50,000-amp surge protector for this antenna can be ordered separately. The coaxial cable connecting the antenna should not exceed 10 m (33.3 ft).
- Standard twisted RJ-11 cable to connect the base station to the Companion radio and line card ports.

## M7310 Companion administration terminal

The M7310 is a standard Norstar Meridian terminal. It allows the system administrator or installer to perform Companion maintenance and administration tasks.

The M7310 provides the following features:

- two line displays
- three display softkeys
- ten feature keys with indicators

The keypad, feature keys and softkeys are used for system administration, maintenance, and configuration functions.

## Meridian DECT Companion 4600 base station

The Meridian DECT Companion 4600 base station supports six active call radio links. The base stations are IP40 compliant wall mounted transceivers which provide digital radio links to Meridian DECT Companion handsets.

## Meridian DECT Companion 4610 base station

The Meridian DECT Companion 4610 base station supports 12 active call radio links. The base stations are IP40 compliant wall mounted transceivers which provide digital radio links to Meridian DECT Companion handsets.

## QMT11 Asynchronous/Synchronous Interface Module

The ASIM provides an RS-232-C interface to customer supplied data equipment. It also provides added dialing capabilities and six data feature keys with associated lamps and data control switches. See *Meridian Data Services: Description* (553-2731-100) for more information.

## QMT12 Add-on Data Module

The synchronous ADM provides a CCITT V.35 interface between the Meridian 1 and customer-supplied data equipment. Each ADM requires a local supplementary power supply. See *Meridian Data Services: Description* (553-2731-100) for more information.

## NT1F09 Asynchronous data option

This microprocessor-controlled device provides the interface (RS-232 compatible) through which ASCII data terminal equipment can be connected to the Meridian 1 network.

The NT1F09 printed circuit board is used with M2317 digital telephones. See *Meridian 1 Telephones: Description and Specifications* (553-3001-108) for more information.

The following features are available:

- automatic data rate detection at all rates using the ASCII carriage return character
- keyboard dialing for originating data calls to local and remote hosts or DTE from the terminal keyboard
- break detection and generation

## NE-G3QDRNC Attendant Handset Assembly

The NE-G3QDRNC Attendant Handset Assembly is available in chameleon ash and black versions. Both versions are hearing aid compatible and are equipped with a 9 ft handset cord.

- NE-G3QDRNC-35 Chameleon Ash
- NE-G3QDRNC-03 Black

## NT3G30 Console Adjustable Stand

The Console Adjustable Stand is attached to the bottom of the Meridian M2250 attendant console by four screws. It is adjustable into any one of nine positions.

## NT3G40 Console Graphics Module/Busy Lamp Field

The Console Graphics Module (CGM/BLF) is an attachment that can be mounted on the back of the M2250 attendant console. The screen of the module relays information relating to the operation of the console and the status of other consoles and extensions.

The Console Graphics Module (CGM/BLF) has a 16-line (20 characters per line) liquid crystal display with backlighting. The Busy Lamp Field (BLF) is an option that displays that status of consoles and extensions. Refer to *Attendant Consoles: Description* (553-2201-117) for additional information.

The graphics module is available in dark gray and chameleon gray ash versions:

- A0349423 (Dark Gray)
- A0349421 (Chameleon Gray Ash)

## NT2K69 Meridian Communications Adapter

The MCA provides the interface (RS-232-compatible) through which ASCII data terminal equipment can be connected to the network. It is available with the M2006, M2008, M2016S, and M2616 Meridian Modular Telephones. Features available include:

- keyboard dialing for originating data calls to local or remote hosts or DTE
- telephone keypad dialing for originating and releasing data calls
- parameter setting through service change (minimum software Release 18 required)
- parameter setting from telephone keypad (required with Release 15–17, optional with Release 18)
- voice call origination from terminal keyboard
- script file capabilities to preprogram resource locations using mnemonic address name.

# Cables

## Content list

The following are the topics in this section:

Reference list . . . . . 158
A0601464 Nullmodem Maintenance Cable . . . . . 159
A0634495 Local Fiber Remote Multi-IPE Cable Superloop . . . . . 159
A0634496 Remote Fiber Remote Multi-IPE Cable Superloop . . . . . 159
A0634497 Fiber Remote Multi-IPE Maintenance Interface Cable . . . . 160
A0660711 25DB Adapter Cable . . . . . 160
NE-A25 Connector Cable . . . . . 160
NE-A25Q Connector Cable . . . . . 160
NPS50843-7L01 Interboard Faceplate Cable Harness . . . . . 161
NPS50843-7L02 Bypass Faceplate Cable Harness . . . . . 161
NPS90781-20L01 CMRC Maintenance Cable . . . . . 161
NPS90781-20L02 CMLC Maintenance Cable . . . . . 162
NT1P64AA Fibre Optic Patchcord . . . . . 162
NT1P75AA Fibre Optic Patchcord . . . . . 162
NT1P76AA Fibre Superloop Network Card to I/O Panel Cable . . . . . 162
NT1P78AA Fibre Peripheral Controller Card to I/O Panel Cable . . . . . 162
NT1P85AA External Alarm Cable . . . . . 163
NT1R04 Clock Controller to I/O Panel Cable . . . . . 163
NT1R05 Intercabinet Clock Reference Cable . . . . . 163

NT2K2AA Null Modem Cable . .. . . . . 163
NT2K91AA RS-232 Cable . . . . . 163
NT4N88AA COM 1 . . . . . 164
NT4N88BA COM 2 . . . . . 164
NT4N90AA Ethernet . . . . . 164
NT5D16AA Meridian 1 Trunk Tip/Ring Cable . . . . . 165
NT5D17AA Meridian 1 Trunk Tip/Ring Cable . . . . . 165
NT5D19AA Maintenance cable . . . . . 165
NT5D50AA DBX Ribbon Cable . . . . . 165
NT5K53AA Cable Assembly (UK only) . . . . . 166
NT5K54AA Cable Assembly (UK only) . . . . . 166
NT5K63AA Cable Assembly (UK only) . . . . . 166
NT5K64AA Cable Assembly (UK only) . . . . . 167
NT5K65AA Cable Assembly (UK only) . . . . . 167
NT5K66AA Cable Assembly (UK only) . . . . . 167
NT5K79AA Cable Assembly (UK only) . . . . . 167
NT5K80AA Cable Assembly (UK only) . . . . . 168
NT5K81AA Cable Assembly (UK only) . . . . . 168
NT5K1104 MDF to EEPE Cable . . . . . 168
NT5K1109 Module to Module Power Harness . . . . . 169
NT5K1110 Intracabinet Network Cable . . . . . 169
NT6D54 Field Wiring Kit . .. . . . . 169
NT7D11 Module to Module Power Harness . . . . . 169
NT7D67DA Local External Maintenance Cable Assembly . . . . . 169
NT7D68AA Remote Carrier/Alarm Cable Assembly . . . . . 169
NT7D68BA Remote Maintenance Cable Assembly . . . . . 170
NT7D68CA Remote Carrier/Alarm Cable Assembly to Small Cabinet . . . . . 170
NT7D68DA Remote Maintenance Cable Assembly to Small Cabinet . . . . . 170

NT7D68EA Coaxial Interface Adapter Cable . . . . . 170
NT7D89 CP to I/O Panel RS-232 Cable . . . . . 170
NT7D90 CP to I/O Panel Ethernet Cable . . . . . 171
NT7R67AA Local Maintenance Cable Assembly . . . . . 171
NT7R67BA Local Carrier/Monitor Cable Assembly . . . . . 171
NT7R67CA Local Maintenance/Clock Cable Assembly . . . . . 171
NT7R67EA Coaxial Interface Adapter Cable . . . . . 171
NT8D40AA AC Power Cord . . . . . 171
NT8D40AM Module to Module Power Harness . . . . . 172
NT8D46AA System Monitor Column Cable . . . . . 172
NT8D46AC Thermostat Harness . . . . . 172
NT8D46AD System Monitor to SDI Cable . . . . . 172
NT8D46AG System Monitor to SDI Paddleboard Cable . . . . . 172
NT8D46AH System Monitor to MDF Cable . . . . . 172
NT8D46AJ System Monitor to UPS (Best) Cable . . . . . 172
NT8D46AL System Monitor Serial Link Cable . . . . . 173
NT8D46AM Air Probe Harness AC . . . . . 173
NT8D46AP System Monitor Serial Link Cable . . . . . 173
NT8D46AQ System Monitor to UPS (Exide) Cable . . . . . 173
NT8D46AS System Monitor Inter-CPU Cable . . . . . 173
NT8D46AT System Monitor to QBL15 Cable . . . . . 173
NT8D46AU System Monitor to UPS (Alpha) Cable . . . . . 174
NT8D46AV System Monitor to Power Cabinet Cable . . . . . 174
NT8D46AW System Monitor to QBL12 Cable . . . . . 174
NT8D46BH System Monitor to MDF Cable . . . . . 174
NT8D46BV System Monitor to Power Cabinet Cable . . . . . 174
NT8D46CC System Monitor to Power Supply PCB Cable . . . . . 174
NT8D46CV System Monitor to Power Cabinet Cable . . . . . 175
NT8D46DC Air Probe Harness DC . . . . . 175
NT8D73 Intercabinet Network Cable . . . . . 169

NT8D75 Clock Controller to Clock Controller Cable . . . . . 175
NT8D79 PRI/DTI to Clock Controller Cable . . . . . 176
NT8D80 CPU Interface Cable . . . . . 176
NT8D81 Tip and Ring Cable . . . . . 176
NT8D82 SDI to I/O Cable . . . . . 177
NT8D83 PRI/DTI to I/O Cable . . . . . 177
NT8D84AA SDI Paddleboard to I/O Cable . . . . . 177
NT8D84BA System Monitor to I/O Cable . . . . . 177
NT8D85 Network to PE Cable . . . . . 178
NT8D86 Network to I/O Cable . . . . . 178
NT8D87 Conference/TDS to Music Trunk Cable . . . . . 179
NT8D88 Network to I/O Cable . . . . . 179
NT8D90AF SDI Multiple-Port Cable . . . . . 179
NT8D91 Network to Controller Cable . . . . . 179
NT8D92AB Controller to I/O Cable . . . . . 180
NT8D93 SDI Paddleboard I/O to DTE/DCE Cable . . . . . 180
NT8D95 SDI I/O to DTE/DCE Cable . . . . . 180
NT8D96AB SDI Multiport Cable . . . . . 181
NT8D97AX PRI/DTI I/O to MDF Cable . . . . . 181
NT8D98 Intercabinet Network Cable . . . . . 181
NT8D99 CPU to Network Cable . . . . . 182
NT9J93AD PRI/DTI Echo Canceler to I/O Cable . . . . . 182
NT9J94AB RPE to I/O Cable . . . . . 182
NT9J96 Intracabinet Network Cable . . . . . 182
NT9J97 Intracabinet Network Cable . . . . . 183
NT9J98 Intracabinet Network Cable . . . . . 183
NT9J99 Intracabinet Network Cable . . . . . 183
NTAG01AA Cable Assembly (UK only) . . . . . 184
NTAG02AA Cable Assembly (UK only) . . . . . 184
NTAG81AA Audio Cable . . . . . 184

NTAG81BA Maintenance Extender Cable . . . . . 184
NTAG81CA PC Maintenance Cable . . . . . 185
NTAG81DA VLAN Maintenance Cable . . . . . 185
NTAK410 Carrier Remote DC Power Cable . . . . . 185
NTAK1204 Carrier Remote Inter-cabinet Cable . . . . . 185
NTCG03 Reference Clock Cable . . . . . 185
NTCK46 External DCHI Cable . . . . . 186
NTCK80 External MSDL Cable . . . . . 186
NTCW10 Meridian DECT Base Station Cable . . . . . 186
NTCW11AA Meridian DECT DMC8 to DMC8 Faceplate Cable . . . . 187
NTCW11BA Meridian DECT DMC8 to DMC8-E Faceplate Cable . . 187
NTCW11EA Meridian DECT DMC8-E to DMC8-E Cable . . . . . 187
NTCW12DA Meridian DECT Ethernet Cable . . . . . 187
NTND11 CP to CP Cable . . . . . 187
NTND13 IOP to IOP SCSI Cable . . . . . 187
NTND26 MSDL DCHI Interface Cable . . . . . 188
NTND27AB MSDL to I/O Panel Cable . . . . . 188
NTND28 Intercabinet Cable . . . . . 188
NTND33 Core Module Upgrade Kit . . . . . 188
NTND33CA Network Expansion Kit . . . . . 188
NTND95 3PE to Connector Housing Cable . . . . . 189
NTRC17AA Crossover Ethernet cable . . . . . 189
NTRC46 Clock to FIJI Cable . . . . . 189
NTRC47 FIJI to FIJI Sync Cable . . . . . 189
NTRC48 Fiber Ring Cable . . . . . 190
NTRC49 Clock to Clock Cable . . . . . 190
P0704007 Superloop Adapter Plate . . . . . 190
P0715058 Universal I/O Panel . . . . . 190
QCA328AD Connector Cable . . . . . 191
QCAD36A and QCAD37A Terminal Connector Cables . . . . . 191

QCAD38A Connector Cable . . . . . 191
QCAD42 Connector Cable . . . . . 191
QCAD115 Connector Cable . . . . . 192
QCAD116 Connector Cable . . . . . 192
QCAD117 Connector Cable . . . . . 192
QCAD118 Connector Cable . . . . . 192
QCAD119 Connector Cable . . . . . 192
QCAD120 Connector Cable . . . . . 192
QCAD121 Connector Cable . . . . . 192
QCAD124 Connector Cable . . . . . 193
QCAD125 Connector Cable . . . . . 193
QCAD128 Connector Cable . . . . . 193
QCAD129 Connector Cable . . . . . 194
QCAD130 Connector Cable . . . . . 194
QCAD133 PRI/DTI I/O to MDF Cable . . . . . 194
QCAD274A AC Power Cord . . . . . 194
QCAD281 Connector Cable . . . . . 194
QCAD282 Connector Cable . . . . . 194
QCAD328 PRI to DCHI Cable . . . . . 195
QCAD332/333 3-Port SDI Cables . . . . . 195
QCB12/13 Connector Cable . . . . . 195

## Reference list

The following are the references in this section:

- *Call Detail Recording: Description and Formats* (553-2631-100)
- *System Installation Procedures* (553-3001-210)

Within Meridian 1, two types of cables are available:

- Intramodule cables connect circuit cards within a module, or they connect to the I/O panels at the rear of the module. Intramodule cables are not shielded. Bail locks or screws are generally used on the connectors to prevent accidental removal.
- Intermodule cables are routed between modules. These cables are used primarily for interconnecting the following subsystems:
  - CPU to CPU
  - CPU to network
  - network to network
  - network to peripheral equipment

## A0601464 Nullmodem Maintenance Cable

**Purpose**—This cable has a DB-9 female and a DB-25 male connector and is used to connect the terminal to the NT5D51 Meridian Integrated Conference Bridge (MICB) card using the Ethernet Adapter card DB-9 male connector. No additional nullmodem is required.

## A0634495 Local Fiber Remote Multi-IPE Cable Superloop

**Hardware systems**—All

**Purpose**—30-ft cable that joins the NT8D92AB backplane cable at the I/O panel to a Fiber Remote Superloop Network card using its 24-pin Centronics connector. The cable connects to a Fiber Remote unit within 30 feet of a Meridian 1 local site via its 37-pin D Shell connector.

**Quantity**—One per Fiber Remote Superloop card.

## A0634496 Remote Fiber Remote Multi-IPE Cable Superloop

**Hardware systems**—All

**Purpose**—30-ft cable that joins the NT8D92AB backplane cable at the I/O panel to a Fiber Remote Superloop Network card using its 24-pin Centronics connector. The cable connects to a Fiber Remote unit within 30 feet of a remote IPE cabinet via its 37-pin D Shell connector.

**Quantity**—One per Fiber Remote Superloop card.

## A0634497 Fiber Remote Multi-IPE Maintenance Interface Cable

**Hardware systems**—All

**Purpose**—A 24-in. cable that daisy-chains the SDI connection on the I/O panel of one Fiber Remote unit (using the end with the DB-9 male connector) to the MAINT connection on the I/O panel on the next Fiber Remote unit (using the end with the DB-9 female connector). Also, the first cable is connected to the SDI port on the Meridian 1 system, and the last cable is connected to a maintenance TTY.

**Quantity**—One per Fiber Remote module.

## A0660711 25DB Adapter Cable

**Hardware systems**—All

**Purpose**—A 2-in. housing that enables a male-female gender change to facilitate connecting cables to equipment.

## NE-A25 Connector Cable

**Purpose**—This cable is used to extend PE termination from PE shelves and transfer unit terminations to the cross-connecting terminal or MDF.

**Features**—25-pair, 26 AWG standard distribution cable connectorized at one end. Available in lengths of 25 to 200 ft (7.7 to 61 m) in increments of 25 ft (7.7 m).

**Quantity**—Refer to *System Installation Procedures* (553-3001-210)

## .NE-A25Q Connector Cable

**Purpose**—This cable is used to extend the CE bus from the CPU to all other CE shelves.

**Features**—25-pair, 26 AWG tight-twisted cable connectorized at both ends.

**Lengths**—

| FT | MM |
|---|---|
| 1.5 | 450 |
| 4 | 1220 |
| 6 | 1830 |
| 20 | 6100 |
| 25 | 7620 |

**Quantity**—Refer to *System Installation Procedures* (553-3001-210).

## NPS50843-7L01 Interboard Faceplate Cable Harness

**Purpose**—Used with COMPANION radio and line cards in Meridian 1 systems with IPE and CE/PE modules. Connects two adjacent cards over the faceplate connectors. A cable is always shipped with an NTCK91 COMPANION Meridian Radio Card (CMRC) and an NTCK93 COMPANION Meridian Line Card (CMLC).

**Length**—5 cm (2 in.)

## NPS50843-7L02 Bypass Faceplate Cable Harness

**Purpose**—Used with COMPANION radio and line cards in Meridian 1 systems with IPE and CE/PE modules. Used to bypass a faulty CMRC or CMLC card and to facilitate removal of the faulty card without disrupting traffic on other COMPANION cards in the module.

**Length**—30 cm (1 ft)

## NPS90781-20L01 CMRC Maintenance Cable

**Purpose**—Used to connect two COMPANION Meridian Radio Card faceplate connectors for maintenance purposes. The cable has designated left and right connectors and care must be taken to plug the right connector into the right-hand CMRC card and the left connector into the left-hand CMRC card.

**Length**—60 cm (2 ft)

## NPS90781-20L02 CMLC Maintenance Cable

**Purpose**—Used to connect two COMPANION Meridian Line Card faceplate connectors for maintenance purposes. The cable has designated left and right connector and care must be taken to plug the right connector into the right-hand CMLC card and the left connector into the left-hand CMLC card.

**Length**—60 cm (2 ft)

## NT1P64AA Fibre Optic Patchcord

**Purpose**—Used to connect the NT1P61 Fibre Superloop Network Card Fibre Optic Packlet to the I/O panel fibre optic connector. The cable provides connections to the fibre optic span.

**Length**—120 cm (4 ft)

## NT1P75AA Fibre Optic Patchcord

**Purpose**—Used to connect the NT1P62 Fibre Peripheral Controller Card Fibre Optic Packlet to the I/O panel fibre optic connector. The cable provides connections to the fibre optic span.

**Length**—120 cm (4 ft)

## NT1P76AA Fibre Superloop Network Card to I/O Panel Cable

**Purpose**—Used to connect the NT1P61 Fibre Superloop Network Card faceplate connector to the I/O panel. The cable provides a connector to an SDI port and to system monitoring functions.

**Length**—120 cm (4 ft)

## NT1P78AA Fibre Peripheral Controller Card to I/O Panel Cable

**Purpose**—Used to connect the backplane connector behind the NT1P62 Fibre Peripheral Controller Card faceplate connector to the I/O panel. The cable provides a connector to a TTY port and to the system monitor.

**Length**—120 cm (4 ft)

## NT1P85AA External Alarm Cable

**Purpose**—Connects external alarms to the CB-15HD female Alarm connector on the NT7R60AA Carrier/Alarm Panel.

**Length**—

## NT1R04 Clock Controller to I/O Panel Cable

**Purpose**—Used with Core module upgrades to Option 81 and the Core/Network module in Option 81C. Connects the clock controller card to the inside of the I/O panel in the Core module or to the Network module I/O panel for Option 81C. Also used from the clock controller junctor connector to the connector housing.

**Length**—1.2 m (48 in.)

## NT1R05 Intercabinet Clock Reference Cable

**Purpose**—Used with Core module upgrades to Option 81 or the Core/Network module in Option 81C for primary and secondary clock reference. Connects the I/O panel on the module to the connector housing.

**Length**—4.8 m (16 ft)

## NT2K2AA Null Modem Cable

**Purpose**—Used with a COMPANION diagnostic PC terminal that connects to Meridian 1. The null modem cable is used when the PC is connected to Meridian 1 using an external modem over the Remote Access Device (RAD).

**Length**—

- A0398761 3.0 m (10 ft)
- A0398762 7.5 m (25 ft)

## NT2K91AA RS-232 Cable

**Purpose**—Used with COMPANION diagnostic PC terminal that connects to Meridian 1. This cable is used when the PC is connected to Meridian 1 using an internal modem located in the Remote Access Device (RAD).

**Length**—

- A0399143 3.0 m (10 ft)
- A0399144 7.5 m (25 ft)

## NT4N88AA COM 1

**Purpose**— Used to extend CP PII card COM 1 port to I/O panel J25 for DTE (terminal) access.

**Length**— 1.2 m (48 in.)

## NT4N88BA COM 2

**Purpose**—Used to extend CP PII card COM 1 port to I/O panel J21 for DCE (modem) access.

**Length**— 1.2 m (48 in.)

## NT4N90AA Ethernet

**Purpose**—Used to extend CP PII card LAN 1 port to I/O panel J31 for LAN access.

**Length**— 1.2 m (48 in.)

## NT4N92BA MMDU CD-ROM and Hard Disk Drive Data

**Purpose**— Part of NT4N73AA (A0862631) cable kit for upgrading an NT4N43AA MMDU to an NT4N43BA MMDU. The cable is used to extend the CD-ROM and hard disk drive of the cPCI Multi-Media Disk Unit to Core/Network module backplane.

**Length**— xm (x in.)

## NT4N93BA MMDU Floppy Disk Drive Data

**Purpose**—Part of NT4N73AA (A0862631) cable kit for upgrading an NT4N43AA MMDU to an NT4N43BA MMDU. The cable is used to extend the floppy disk drive of the cPCI Multi-Media Disk Unit to Core/Network module backplane.

**Length**— x m (x in.)

## NT4N95A MMDU CD-ROM, FDD, and HDD power

**Purpose**—Part of NT4N73AA (A0862631) cable kit for upgrading an NT4N43AA MMDU to an NT4N43BA MMDU. The cable is used to extend power from the Core/Network module backplane to the CD-ROM, floppy disk drive, and hard disk drive of the cPCI Multi-Media Disk Unit.

**Length**— x m (x in.)

## NT5D16AA Meridian 1 Trunk Tip/Ring Cable

**Purpose—**Used to connect the 9-pin D-type TRK port on the NT5D12AA Dual DTI/PRI (DDP) card faceplate to the I/O filter.

**Features—**A 100¾ cable for Meridian 1 and Meridian SL-1 systems equipped with an I/O filter panel.

Length—2.5 m (8 ft)

## NT5D17AA Meridian 1 Trunk Tip/Ring Cable

**Purpose—**Used to connect the 9-pin D-type TRK port on the DDP faceplate directly to the Network Channel Terminating Equipment (NCTE).

**Features—**A 100¾ cable for Meridian SL-1 systems not equipped with an I/O filter panel. For Meridian SL-1 systems with an I/O filter panel, use QCAD133 PRI/DTI I/O to MDF Cable.

**Length—**15 m (50 ft)

## NT5D19AA Maintenance cable

**Purpose—**Used to connect the terminal to the 50-pin tip/ring connector on the IPE module I/O panel. This cable requires a nullmodem for proper connection to the MMI terminal.

## NT5D50AA DBX Ribbon Cable

**Purpose—**Used to transfer the database when upgrading Omega systems to the NT5D61 IODU/C card. This cable is used to connect the NT5D54AA SCSI ribbon cable on the IODU/C card CD-ROM drive to the floppy drive A connector on the MDU/SMDU.

**Features—**A ribbon cable with a female connector and a male SCSI connector. When connected, the red edge of the NT5D50AA DBX Ribbon Cable should face towards the bottom of the IODU/C card (toward the edge of the card).

**Length:**.9 m (3 ft)

## NT5K53AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the system to the cross-connect terminal.

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

**Length**—15.2 m (52 ft)

## NT5K54AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the system to the cross-connect terminal.

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

**Length**—7.6 m

## NT5K63AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the system to the cross-connect terminal

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

**Length**—29.5 m

## NT5K64AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the system to the cross-connect terminal.

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

**Length**—7.6 m

## NT5K65AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the system to the cross-connect terminal.

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

**Length**—15.2 m

## NT5K66AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the system to the cross-connect terminal

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

**Length**—29.5 m

## NT5K79AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the console to the cross-connect terminal

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

**Length**—15.3 m

## NT5K80AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the console to the cross-connect terminal

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

**Length**—30.5 m

## NT5K81AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the console to the cross-connect terminal

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

**Length**—91.4 m

## NT5K1104 MDF to EEPE Cable

**Purpose**—This cable is used to connect the NT5K1106 EEPE backplane to the MDF connector panels in the EEPE module.

**Length**—20 in. (500 mm)

## NT5K1109 Module to Module Power Harness

**Purpose**—This cable is used in DC modules to connect the input DC power and speed control signals vertically through the column. It is used to connect the EEPE module to the system.

## NT5K1110 Intracabinet Network Cable

**Purpose**—This cable is used to connect the NT5K10AA Enhanced Dual Loop Buffer to the MDF panel.

**Length**—20 in. (500 mm)

## NT6D54 Field Wiring Kit

**Purpose**—Used in conjunction with the cable between the NT8D22 System Monitor and a QBL15 Power Distribution Box. The kit provides the necessary hardware to connect four NT6D52 rectifiers to the system monitor.

## NT7D11 Module to Module Power Harness

**Purpose**—Used in DC-powered modules to conduct the input DC power and control signals vertically through the column. It is constructed in a modular form and can be disconnected for the removal and/or replacement of modules. The DC power harness is larger than that of the AC system because it requires more input wires to handle lower voltage and the associated higher current.

## NT7D67DA Local External Maintenance Cable Assembly

**Purpose**—Used with Options 51C, 61C, and 81C. Connects the TTY or the terminal and the SDI card to the I/O panel.

**Length**—120 cm (4 ft)

## NT7D68AA Remote Carrier/Alarm Cable Assembly

**Purpose**—Used with Remote Carrier IPE floor-standing module configuration. Connects the NT7R52 Remote Carrier Interface card through the backplane connector to the I/O panel to provide T1 carrier span connection.

**Length**—120 cm (4 ft)

## NT7D68BA Remote Maintenance Cable Assembly

**Purpose**—Used with Remote Carrier IPE floor-standing module configuration. Connects the NT7R52 Remote Carrier Interface card through the backplane connector to the I/O panel to provide TTY and system monitor connections.

**Length**—120 cm (4 ft)

## NT7D68CA Remote Carrier/Alarm Cable Assembly to Small Cabinet

**Purpose**—Used with Remote Carrier IPE wall-mounted small cabinet configuration. Connects the NT7R52 Remote Carrier Interface card through the backplane P3 connector to the I/O panel to provide T1 carrier span connection.

**Length**—120 cm (4 ft)

## NT7D68DA Remote Maintenance Cable Assembly to Small Cabinet

**Purpose**—Used with Remote Carrier IPE wall-mounted small cabinet configuration. Connects the NT7R52 Remote Carrier Interface card through the backplane P2 connector to the I/O panel to provide the TTY connection.

**Length**—120 cm (4 ft)

## NT7D68EA Coaxial Interface Adapter Cable

**Purpose**—Used with Remote Carrier IPE configuration. Connects the RJ-48 connectors on the I/O panel assembly to the BNC E1 carrier span connectors.

**Length**—60 cm (2 ft)

## NT7D89 CP to I/O Panel RS-232 Cable

**Purpose**—Used with Options 51C, 61C, and 81C. Through connectors on the rear of the backplane, it connects the maintenance port on the NT6D66 CP Card to the I/O panel in the Core and Core/Network modules. This “wye” connected cable provides both RS-232 DTE and DCE connections at the I/O panel. Two required per system.

**Length**—38 cm (15 in.)

## NT7D90 CP to I/O Panel Ethernet Cable

**Purpose**—Used with Options 51C, 61C, and 81C. Connects the Ethernet port on the NT6D66 CP Card to the I/O panel in the Core and Core/Network modules.

**Length**—34 cm (14 in.)

## NT7R67AA Local Maintenance Cable Assembly

**Purpose**—Used with Options 51C, 61C, and 81C. Connects the NT7R51 Local Carrier Interface Card to the I/O panel.

**Length**—120 cm (4 ft)

## NT7R67BA Local Carrier/Monitor Cable Assembly

**Purpose**—Used with Options 51C, 61C, and 81C. Connects the NT7R51 Local Carrier Interface Card to the I/O panel and to the T1 carrier span.

**Length**—120 cm (4 ft)

## NT7R67CA Local Maintenance/Clock Cable Assembly

**Purpose**—Used with Options 51C, 61C, and 81C. Connects the NT7R51 Local Carrier Interface Card to the I/O panel and to the clock controller card.

**Length**—120 cm (4 ft) and 60 cm (2 ft) branches

## NT7R67EA Coaxial Interface Adapter Cable

**Purpose**—Used with Options 51C, 61C, and 81C. Connects the RJ-48 connectors on the I/O panel assembly to the BNC connectors of the E1 carrier span.

**Length**—60 cm (2 ft)

## NT8D40AA AC Power Cord

**Purpose**—Connects to an IG-L6-30 30-amp receptacle and conducts AC power into the pedestal for AC systems.

**Length**—2.7 m (9 ft)

## NT8D40AM Module to Module Power Harness

**Purpose**—Used in AC modules to conduct the input AC power and control signals vertically through the column. It is constructed in a modular form and can be disconnected when necessary to allow for the removal and/or replacement of modules.

## NT8D46AA System Monitor Column Cable

**Purpose**—Connects NT8D22 System Monitor signals vertically through the column.

## NT8D46AC Thermostat Harness

**Purpose**—The thermostat harness is part of the temperature sensor assembly. It contains two thermal sensors and a fault LED. At 70 degrees Celsius, the thermal sensors trip and cause system shutdown. The thermostat harness plugs into the backplane of the top module.

## NT8D46AD System Monitor to SDI Cable

**Purpose**—Connects an SDI card to the NT8D22 System Monitor. Replaces the NT8D46AA cable when the SDI card is in the same column as the system monitor.

## NT8D46AG System Monitor to SDI Paddleboard Cable

**Purpose**—Connects the NT8D22 System Monitor to the NT8D41 SDI Paddleboard (use instead of the NT8D46AA cable).

## NT8D46AH System Monitor to MDF Cable

**Purpose**—Replaced by the NT8D46BH cable.

Connects the system monitor to the MDF when a PFTU is used.

**Length**—9.7 m (32 ft)

## NT8D46AJ System Monitor to UPS (Best) Cable

**Purpose**—Connects the NT8D22 System Monitor to a Best uninterruptible power supply (UPS). Used for UPS monitoring.

**Length**—13.7 m (45 ft)

## NT8D46AL System Monitor Serial Link Cable

**Purpose**—Connects the NT8D22 System Monitor from one column to another.

**Length**—2.1 m (7 ft)

## NT8D46AM Air Probe Harness AC

**Purpose**—The Air Probe Harness AC is part of the temperature sensor assembly and is used in AC systems. It uses a 24-pin connector. It senses exit air temperature and relates the information to the blower unit.

## NT8D46AP System Monitor Serial Link Cable

**Purpose**—Connects the NT8D22 System Monitor from one column to another.

**Length**—7.6 m (25 ft)

## NT8D46AQ System Monitor to UPS (Exide) Cable

**Purpose**—Connects the NT8D22 System Monitor to an Exide uninterruptible power supply (UPS). Used for UPS monitoring.

**Length**—13.7 m (45 ft)

## NT8D46AS System Monitor Inter-CPU Cable

**Purpose**—Used with Options 61C, and 81C. Connects the dual CPUs together for NT8D22 System Monitor functions. Replaces the NT8D46AA cable in both CPU modules.

## NT8D46AT System Monitor to QBL15 Cable

**Purpose**—Connects the NT8D22 System Monitor to the QBL15 Power Distribution Box. Used to monitor the DC power plant.

**Length**—9.7 m (32 ft)

## NT8D46AU System Monitor to UPS (Alpha) Cable

**Purpose**—Connects the NT8D22 System Monitor to an Alpha uninterruptible power supply (UPS). Used for UPS monitoring.

**Length**—13.7 m (45 ft)

## NT8D46AV System Monitor to Power Cabinet Cable

**Purpose**—Connects the NT8D22 System Monitor to the MFA150 Power System, MPP600 Power Plant, or QCA13 Power Cabinet. Used to monitor the DC power plant.

**Length**—9.7 m (32 ft)

## NT8D46AW System Monitor to QBL12 Cable

**Purpose**—Connects the NT8D22 System Monitor to the QBL12 Battery Distribution Box. Used to monitor the DC power plant.

**Length**—9.7 m (32 ft)

## NT8D46BH System Monitor to MDF Cable

**Purpose**—Replaces the NT8D46AH cable.

Connects the system monitor to the MDF when a power failure transfer unit is used.

**Length**—9.7 m (32 ft)

## NT8D46BV System Monitor to Power Cabinet Cable

**Purpose**—Connects the NT8D22 System Monitor to the MFA150 Power System, MPP600 Power Plant, or QCA13 Power Cabinet. Used to monitor the DC power plant.

**Length**—19.5 m (64 ft)

## NT8D46CC System Monitor to Power Supply PCB Cable

**Purpose**—Connects the NT8D22 System Monitor to the power supply printed circuit board (PCB) in the NT7D67CB PDU.

## NT8D46CV System Monitor to Power Cabinet Cable

**Purpose**—Connects the NT8D22 System Monitor to the MFA150 Power System, MPP600 Power Plant, or QCA13 Power Cabinet. Used to monitor the DC power plant.

**Length**—30.5 m (100 ft)

## NT8D46DC Air Probe Harness DC

**Purpose**—The Air Probe Harness DC is part of the temperature sensor assembly and is used in DC systems. It uses a 36-pin connector. It senses exit air temperature and relates the information to the blower unit.

## NT8D73 Intercabinet Network Cable

**Purpose**—Interconnects QPC414 Network Cards:

- from Network module to PE module or local site RPE module through the I/O panels
- from QCA55 cabinet to PE module

**Lengths**—

- NT8D73AD 1.8 m (6 ft)
- NT8D73AF 3.6 m (12 ft)
- NT8D73AL 6.0 m (20 ft)
- NT8D73AS 9.1 m (30 ft)

## NT8D75 Clock Controller to Clock Controller Cable

**Purpose**—Interconnects clock controller cards.

**Lengths**—

- NT8D75BC 1.2 m (4 ft)
- NT8D75BD 1.8 m (6 ft)

## NT8D79 PRI/DTI to Clock Controller Cable

**Purpose**—Connects the PRI or DTI cards designated as primary and secondary clock references to the clock controller cards.

**Lengths**—

- NT8D79AB 0.6 m (2 ft)
- NT8D79AC 1.2 m (4 ft)
- NT8D79AD 1.8 m (6 ft)
- NT8D79AE 2.4 m (8 ft)
- NT8D79AF 3.0 m (10 ft)

## NT8D80 CPU Interface Cable

**Purpose**—Connects the QPC441F 3PE Card in the Core/Network Module 0 to the QPC441F 3PE Card in the Core/Network Module 1 (Options 61C and 81C)

**Lengths**—

| | | |
|---|---|---|
| • NT8D80AB | NT8D80BB | 0.6 m (2 ft) |
| • NT8D80AC | NT8D80BC | 1.2 m (4 ft) |
| • NT8D80AZ | NT8D80BZ | 1.5 m (5 ft) |
| • NT8D80AD | NT8D80BD | 1.8 m (6 ft) |
| • NT8D80AE | NT8D80BE | 2.4 m (8 ft) |
| • NT8D80AF | NT8D80BF | 3.0 m (10 ft) |
| • NT8D80AG | NT8D80BG | 3.6 m (12 ft) |
| • NT8D80AJ | NT8D80BJ | 4.8 m (16 ft) |
| • NT8D80AL | NT8D80BL | 6.0 m (20 ft) |
| • NT8D80AP | NT8D80BP | 7.6 m (25 ft) |

## NT8D81 Tip and Ring Cable

**Purpose**—Connects a line card to the I/O panel. The ribbon cable is attached to the EMI filter.

**Length**—50 cm (20 in.)

## NT8D82 SDI to I/O Cable

**Purpose**— This cable assembly also includes the EMI filter. Connects the following cards to the I/O panel:

- QPC757 DCHI Card
- QPC513 ESDI Card
- QPC841 4-Port SDI Card
- QPC687 CPU Card

**Lengths**—

| | |
|---|---|
| • NT8D82AC | 1.2 m (4 ft) |
| • NT8D82AD | 1.8 m (6 ft) |

## NT8D83 PRI/DTI to I/O Cable

**Purpose**— This cable assembly also includes the EMI filter. Connects the T1 port on a PRI or DTI card to the I/O panel.

**Lengths**—

| | |
|---|---|
| • NT8D83AC | 1.2 m (4 ft) |
| • NT8D83AD | 1.8 m (6 ft) |

## NT8D84AA SDI Paddleboard to I/O Cable

**Purpose**— This cable assembly also includes the EMI filter. Connects the NT8D41 SDI Paddleboard to the I/O panel.

**Length**—45.7 cm (18 in.)

## NT8D84BA System Monitor to I/O Cable

**Purpose**— This cable assembly also includes the EMI filter. Connects the NT7D15 System Monitor to the I/O panel.

**Length**—45.7 cm (18 in.)

## NT8D85 Network to PE Cable

**Purpose**—Connects the following:

- CMA card on CPU 0 to the CMA card on CPU 1 (Options 61 and 71)
- QPC414 Network Card to PRI or DTI card
- QPC414 Network Card to QPC659 DLB Card (for internal cabling only)
- QPC414 Network Card to E and F connectors on the NT8D47 RPE module, used only for internal cabinet connections
- QPC659 DLB Card to QPC659 DLB Card when connecting two NT8D13 PE Modules together

**Lengths**—

- NT8D85BB 0.6 m (2 ft)
- NT8D85BC 1.2 m (4 ft)
- NT8D85BZ 1.5 m (5 ft)
- NT8D85BD 1.8 m (6 ft)
- NT8D85BE 2.4 m (8 ft)
- NT8D85BF 3.0 m (10 ft)
- NT8D85BJ 4.8 m (16 ft)
- NT8D85BL 6.0 m (20 ft)
- NT8D85BP 7.6 m (25 ft)
- NT8D85BV 10.7 m (35 ft)

## NT8D86 Network to I/O Cable

**Purpose**— This cable assembly also includes the EMI filter. Connects the following to the I/O panel:

- QPC414 Network Card
- PRI or DTI card
- QPC659 DLB Card
- NT8D47 RPE Module

**Length**—

- NT8D86AC 1.5 m (5 ft)
- NT8D86BD 1.8 m (6 ft)

## NT8D87 Conference/TDS to Music Trunk Cable

**Purpose**—This cable is used to connect the NT8D17AA Conference/TDS Card to the music trunk or I/O connector panel.

**Length**—This cable is available in the following lengths:

- NT8D87AC1.2 m (4 ft)
- NT8D87AD1.8 m (6 ft)

## NT8D88 Network to I/O Cable

**Purpose**— This cable assembly also includes the EMI filter. Connects the NT8D04 Superloop Network Card to the I/O panel.

**Lengths**—

- NT8D88AC 1.5 m (5 ft)
- NT8D88AD 1.8 m (6 ft)

## NT8D90AF SDI Multiple-Port Cable

**Purpose**—An internal multiple-port extension cable for the QPC841 4-Port SDI Card. Connects from the I/O panel to the NT8D96AB cable.

**Length**—3 m (10 ft)

## NT8D91 Network to Controller Cable

**Purpose**—Used for internal cabling to connect the NT8D04 Superloop Network Card to the NT8D01 Controller Card.

**Lengths**—

- NT8D91AC 1.2 m (4 ft)
- NT8D91AD 1.8 m (6 ft)
- NT8D91AE 2.4 m (8 ft)
- NT8D91AF 3.0 m (10 ft)
- NT8D91AG 3.6 m (12 ft)
- NT8D91AJ 4.8 m (16 ft)
- NT8D91AP 7.6 m (25 ft)
- NT8D91AT 10.6 m (35 ft)
- NT8D91AV 13.7 m (45 ft)

## NT8D92AB Controller to I/O Cable

**Purpose**—Connects the NT8D01 Controller Card to the I/O panel. Used only when the network loop is cabled externally.

**Length**—50 cm (20 in.)

## NT8D93 SDI Paddleboard I/O to DTE/DCE Cable

**Purpose**—Connects the NT8D41 SDI Paddleboard to DTE or DCE through the I/O panel.

**Lengths**—

- NT8D93AJ 4.8 m (16 ft)
- NT8D93AW 14.6 m (48 ft)

## NT8D95 SDI I/O to DTE/DCE Cable

**Purpose**—Connects ports on the following cards to DTE or DCE through the I/O panel:

- QPC513 ESDI Card
- QPC841 4-Port SDI Card
- QPC687 CPU Card

**Lengths**—

- NT8D95AJ (male-to-male) 4.8 m (16 ft)
- NT8D95BJ (male-to-female) 4.8 m (16 ft)
- NT8D95AT (male-to-male) 10.3 m (34 ft)
- NT8D95BT (male-to-female) 10.3 m (34 ft)
- NT8D95AW (male-to-male) 14.6 m (48 ft)
- NT8D95BW (male-to-female) 14.6 m (48 ft)

## NT8D96AB SDI Multiport Cable

**Purpose**—Three-way cable used with the QPC841 Quad Serial Data Interface Card. Connects external terminal equipment to the I/O panel.

Connects the PRI or DTI card to the MDF through the I/O panel.

**Length**—0.6 m (2 ft)

## NT8D97AX PRI/DTI I/O to MDF Cable

**Purpose**—This cable connects the PRI/DTI card to the MDF via the I/O connector panel.

**Length**—15.2 m (50 ft)

## NT8D98 Intercabinet Network Cable

**Purpose**—Interconnects NT8D04 Superloop Network Cards:

- from Network module to IPE module through the I/O panel
- from QCA55 cabinet to IPE module (used for system upgrades)

**Lengths**—

- NT8D98AD 1.8 m (6 ft)
- NT8D98AF 3.6 m (12 ft)
- NT8D98AL 6.0 m (20 ft)
- NT8D98AS 9.1 m (30 ft)
- NT8D98AT 11.5 m (38 ft)

  (NT8D98AT not for QCA55 cabinet application)

## NT8D99 CPU to Network Cable

**Purpose**—Interconnects NT8D35 Network Modules in a full group configuration. Connects to backplane connector A, B, C, D, or E (therefore, it is also known as the ABCDE cable).

**Lengths**—

- NT8D99BB 0.65 m (26 in)
- NT8D99AC 1.2 m (4 ft)
- NT8D99BD 1.95 m (66 in)

## NT9J93AD PRI/DTI Echo Canceler to I/O Cable

**Purpose**—Connects the PRI or DTI echo canceler port to the I/O panel.

**Length**—1.8 m (6 ft)

## NT9J94AB RPE to I/O Cable

**Purpose**—This cable is used to connect the NT8D47 RPE to the I/O connector panel.

**Length**—0.6 m (2 ft)

## NT9J96 Intracabinet Network Cable

**Purpose**—Used for system upgrades. Connects the QPC414 Network Card to the I/O panel within a QCA55 cabinet.

**Lengths**—

- NT9J96AC 1.0 m (40 in.)
- NT9J96AD 1.8 m (70 in.)
- NT9J96AE 2.2 m (85 in.)
- NT9J96AG 3.6 m (12 ft)
- NT9J96AH 4.3 m (14 ft)
- NT9J96AJ 4.8 m (16 ft)

## NT9J97 Intracabinet Network Cable

**Purpose**—Used for system upgrades. Connects the NT8D04 Superloop Network Card to the I/O panel in a QCA55 cabinet.

**Lengths**—

- NT9J97AC 1.0 m (40 in.)
- NT9J97AD 1.8 m (70 in.)
- NT9J97AE 2.2 m (85 in.)
- NT9J97AG 3.6 m (12 ft)
- NT9J97AH 4.3 m (14 ft)
- NT9J97AJ 4.8 m (16 ft)

## NT9J98 Intracabinet Network Cable

**Purpose**—Used for system upgrades. Connects the QPC414 Network Card to the I/O panel of the QCA108 or QCA136 cabinet.

**Lengths**—

- NT9J98AC 1.0 m (40 in.)
- NT9J98AD 1.8 m (70 in.)
- NT9J98AE 2.2 m (85 in.)

## NT9J99 Intracabinet Network Cable

**Purpose**—Used for system upgrades. Connects the NT8D04 Superloop Network Card to the I/O panel of the QCA108 or QCA136 cabinet.

**Lengths**—

- NT9J99AC 1.0 m (40 in.)
- NT9J99AD 1.8 m (70 in.)
- NT9J99AE 2.2 m (85 in.)

## NTAG01AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the console to the cross-connect terminal.

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

**Length**—0.5 m

## NTAG02AA Cable Assembly (UK only)

**Purpose**—This cable is used to connect the console to the cross-connect terminal.

**Features**—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

**Length**—91.4 m

## NTAG81AA Audio Cable

**Purpose**—Connects external analog music source or a recording device to the 3.5 mm Audio Jack on the NTAG36 Meridian Integrated RAN card faceplate. This is a splitter cable that provides the audio input signal on one connector and the audio output signal on the other connector.

## NTAG81BA Maintenance Extender Cable

**Purpose**—Extends the NTAG81CA PC Maintenance cable or the NTAG81DA VLAN Maintenance cable when connecting a terminal to the NTAG36 Meridian Integraded RAN card. It is terminated with one 9-pin D-sub male and one 9-pin D-Sub female connector.

**Length**—5 m (16.4 feet)

## NTAG81CA PC Maintenance Cable

**Purpose**—Connects the terminal to the NTAG36 Meridian Integrated RAN card maintenance port on the faceplate. It is terminated with an 8-pin Mini-DIN male connector and a 9-pin D-Sub female connector.

**Length**—3 m (9.8 feet)

## NTAG81DA VLAN Maintenance Cable

**Purpose**—Connects the Mini-DIN maintenance connector on the NTAG36 Meridian Integraded RAN (MIRAN) faceplate to a terminal or to an adjacent MIRAN to form a LAN daisy chain. It is terminated with an 8-pin Mini-DIN connector on the common side and two 9-pin D-Sub connectors one male and one female, on the split side.

**Length**—3 m (9.8 feet)

## NTAK410 Carrier Remote DC Power Cable

**Purpose**—Used to connect the cabinet to a reserve battery power supply or to a DC power source through the NTAK28 Junction Box.

**Length**—1.8 m (70 in.)

## NTAK1204 Carrier Remote Inter-cabinet Cable

**Purpose**—Used to connect the main cabinet to the expansion unit in the small Carrier Remote IPE cabinet.

**Length**—2.2m (85 in.)

## NTCG03 Reference Clock Cable

**Purpose—**Used to connect each of the CLK0 or CLK1 ports on the NT5D12AA Dual DTI/PRI (DDP) card to the primary or secondary source ports on the Clock Controller card 0 or 1.

**Length—**

- NTCG03AA 4.2 m (14 ft)
- NTCG03AB 0.84 m (2.8 ft)
- NTCG03AC 1.2 m (4.0 ft)
- NTCG03AD 2.1 m (7 ft)

## NTCK46 External DCHI Cable

**Purpose—**Used to connect the NT5D12AA Dual DTI/PRI (DDP) card to the QPC757 DCHI D-Channel Handler card.

**Length—**

- NTCK46AA 1.8 m (6 ft)
- NTCK46AB 5.4 m (18 ft)
- NTCK46AC 10.6 m (35 ft)
- NTCK46AD 15.2 m (50 ft)

## NTCK80 External MSDL Cable

**Purpose—**Used to connect the NT5D12AA Dual DTI-PRI (DDP) card to the NT6D80 MSDL card.

**Length—**

- NTCK80AA 1.8 m (6 ft)
- NTCK80AB 5.4 m (18 ft)
- NTCK80AC 10.6 m (35 ft)
- NTCK80AD 15.2 m (50 ft)

## NTCW10 Meridian DECT Base Station Cable

**Purpose—**Used with a UTP Cat 5 cable to connect a Meridian DECT base station to the MDF.

## NTCW11AA Meridian DECT DMC8 to DMC8 Faceplate Cable

**Purpose—**Used to interconnect Meridian DECT DMC8 cards faceplates.

## NTCW11BA Meridian DECT DMC8 to DMC8-E Faceplate Cable

**Purpose—**Used to interconnect Meridian DECT DMC8 cards to DMC8-E cards.

## NTCW11EA Meridian DECT DMC8-E to DMC8-E Cable

**Purpose—**Used to interconnect two Meridian DECT IPE shelves.

## NTCW12DA Meridian DECT Ethernet Cable

**Purpose—**Used to connect the Meridian DECT IPE shelf to the Optivity Telephony Manager LAN.

## NTND11 CP to CP Cable

**Purpose**—Used with Options 61C. Through connectors on the rear of the backplane, connects the NT6D66 CP Card in Core/Network Module 0 to the NT6D66 CP Card in Core/Network Module 1 for Options 61C. For Option 61C with Core/Network modules stacked in one column, NTND11AA (2 ft) is used. Two required per system.

**Length**—

- NTND11AA 0.6 m (2 ft.)
- NTND11BA 1.8 m (6 ft.)

## NTND13 IOP to IOP SCSI Cable

**Purpose**—Used with Options 61C. Through connectors on the rear of the backplane, connects the card slot for the NT6D63 IOP Card in Core/Network Module 0 to the NT6D63 IOP Card in the Core/Network Module 1.

One required per system.

**Length**—NTND13BC1.8 m (6 ft)

## NTND26 MSDL DCHI Interface Cable

**Purpose**—Connects a multipurpose serial data link (MSDL) port to the ISDN PRI trunk connector for DCH.

**Lengths**—

- NTND26AA 1.8 m (6 ft)
- NTND26AB 5.5 m (18 ft)
- NTND26AC 10.6 m (35 ft)
- NTND26AD 15.2 m (50 ft)

## NTND27AB MSDL to I/O Panel Cable

**Purpose**—Connects an MSDL port to the I/O panel.

**Length**—1.8 m (6 ft)

## NTND33 Core Module Upgrade Kit

**Purpose**—Sets of cables and a connector housing used with Core module upgrades to Option 81:

- NTND33CB Clock/Group 0 Kit—provides cables for the clock controller card and a single network group (Group 0)
- NTND33CC Two-Group Kit—provides the cables for network groups other than Group 0; one kit required for groups 1 and 2; an additional kit required for groups 3 and 4; used with the NTND33CB kit. This kit can also be used when upgrading to Option 81C.

  ***Note:*** The NTND33CB Clock/Group 0 Kit replaces the NTND33BB Group 0 Kit. The NTND33CC Two-Group Kit replaces the NTND33BC Group 1–2 and NTND33BD Group 3–4 Kits.

## NTND33CA Network Expansion Kit

**Purpose**—Sets of cables and connector housings used to add additional network groups.

**Length**—NTND28BA 4 m (13 ft)

## NTND95 3PE to Connector Housing Cable

**Purpose**—Used for upgrades to Options 81 and 81C. Connects QPC441 3PE Cards in Network modules to an EMI-filter connector housing. Two required per half group.

Included in the NTND33 Core Module Upgrade Kits.

**Length**—2.5 m (8 ft)

## NTRC17AA Crossover Ethernet cable

**Purpose**—Used to connect CP PII card LAN 2 port of Core/Net 0 to CP PII card LAN 2 port of Core/Net 1. If a LAN hub is not available, used to connect CP PII card LAN 1 port of Core/Net 0 to CP PII card LAN 1 port of Core/Net 1.

**Length**—

- A0xxxxx.0 m (xx ft)
- A0xxxxx.x m (xx ft)

## NTRC46 Clock to FIJI Cable

**Purpose**—Used to connect the Clock Controller cards and the FIJI cards in Group 0. Two required per system.

**Lengths**

- NTRC46AB 4 ft - 13.5* ft
- NTRC46BB 5.5 ft - 8* ft
- NTRC46CB 22 ft - 22* ft

* Indicates the lengths of the two “Y” terminations.

## NTRC47 FIJI to FIJI Sync Cable

**Purpose**—Used to connect the FIJI cards in shelf 0 and shelf 1 (except group 0). One FIJI to FIJI Sync cable is required per network group.

**Length:**

- NTRC47AA 5 ft

## NTRC48 Fiber Ring Cable

**Purpose**—Used to connect FIJI cards in a Fiber Network-based system. One ring cables the FIJI cards in all Network shelf 0, and a second ring cables the FIJI cards in Network shelf 1. One required per FIJI card.

**Lengths**

- NTRC48AA 6 ft
- NTRC48BA 10 ft
- NTRC48CA 12 ft
- NTRC48DA 14 ft
- NTRC48EA 19 ft
- NTRC48FA 26 ft
- NTRC48GA 32 ft
- NTRC48HA 50 ft

## NTRC49 Clock to Clock Cable

**Purpose**—Used to connect Clock 0 to Clock 1 in a Fiber Network-based system. This cable also provides the connections to the NTRC46 cables that connect between the Clock Controllers and the FIJI cards in group 0. One Clock to Clock cable is required per system.

**Lengths**

- NTRC49AA 6 ft
- NTRC49BA 20 ft

## P0704007 Superloop Adapter Plate

**Purpose**—Reduces the QPC414 network loop cutout to accept a superloop connection.

## P0715058 Universal I/O Panel

**System hardware**—All

**Purpose**—Provides increased I/O panel capacity for QPC414 network loops that must extend outside the Meridian 1 module, or other connectivity provided by this panel.

## QCA328AD Connector Cable

**Purpose**—Used to connect the PRI card to the D-channel interface card, the QPC757 DCHI.

**Features**—25-pair cable with a 25-pin D-type male connector at one end and a 15-pin D-type male connector at the other end.

**Lengths**—

- QCAD328A 6 ft (1.8 m)
- QCAD328B 18 ft (5.5 m)

## QCAD36A and QCAD37A Terminal Connector Cables

**Purpose**—To connect a serial data interface (SDI) circuit card to a local data terminal or data communications equipment.

The QCAD36A connector is used when the data terminal is located within 16 cable ft (4.9 m) of the SDI card. For greater distances (up to 50 cable ft), use the QCAD37A connector.

**Features**—25-wire, 24 AWG standard EIA interface cable. Connectorized at both ends (90 degree. hoods), 16 ft (4.9 m) or 50 ft (15.2 m) in length.

**Quantity**—One cable for each terminal.

## QCAD38A Connector Cable

**Purpose**—To interconnect two changeover and memory arbitrator cards in a dual-CPU configuration.

**Features**—25-pair cable; 2.5 ft (762 mm) in length.

**Length**—1 m (3 ft)

## QCAD42 Connector Cable

**Purpose**—Used to connect an SDI port to the input/output panel.

**Features**—25-wire flat ribbon cable, 28 AWG, 95 in. (2413 mm) in length.

## QCAD115 Connector Cable

**Purpose**—Used to connect PE shelf to Input/Output panel.

**Features**—25-pair ribbon cable, 26 AWG, 20 in. (508 mm) in length. Two 50-pin connections.

## QCAD116 Connector Cable

**Purpose**—Used to connect a PE shelf to the input/output panel.

**Features**—25-pair flat ribbon cable, 26 AWG, 40 in. (1016 mm) in length. Two 50-pin connectors.

## QCAD117 Connector Cable

**Purpose**—Used to connect a PE shelf to the input/output panel.

**Features**—25-pair flat ribbon cable, 26 AWG, 60 in. (1651 mm) in length. Two 50-pin connectors.

## QCAD118 Connector Cable

**Purpose**—Used to connect a PE shelf to the input/output panel.

**Features**—25-pair flat ribbon cable, 26 AWG, 80 in. (2032 mm) in length. Two 50-pin connectors.

## QCAD119 Connector Cable

**Purpose**—Used to connect an SDI port to the input/output panel.

**Features**—25-wire flat ribbon cable, 28 AWG, 65 in. (1651 mm) in length.

## QCAD120 Connector Cable

**Purpose**—Used to connect an SDI port to the input/output panel.

**Features**—25-wire flat ribbon cable, 28 AWG, 75 in. (1905 mm) in length.

## QCAD121 Connector Cable

**Purpose**—Used to connect an SDI port to the input/output panel.

**Features**—25-wire flat ribbon cable, 28 AWG, 45 in. (1143 mm) in length.

## QCAD124 Connector Cable

**Purpose**—

- to connect each network circuit card to a group of PE shelves
- to interconnect network extender circuit cards
- to interconnect PE shelves in the same network loop
- to interconnect tone and digit switch circuit cards
- to connect multigroup switch cards to multigroup extender cards
- to interconnect multigroup extender cards

**Features**—18-pair, 26 AWG tight-twisted cable, connectorized at both ends (90 degree connectors). Use NE-A18Q for 180 degree connectors.

**Lengths**—

| FT | MMFT | MM |
|---|---|---|
| 3 | 915 20 | 6100 |
| 4 | 122025 | 7600 |
| 6 | 183035 | 10700 |
| 10 | 305045 | 13800 |
| 15 | 456050 | 15240 |

## QCAD125 Connector Cable

**Purpose**—Connects clock controller 0 to clock controller 1. This is a 25-pair cable with a 50-pin, 90 degree connector on each end.

**Length**—3 m (10 ft)

## QCAD128 Connector Cable

**Purpose**—Connects the QPC472 DTI Carrier Interface connector (J5) to the cabinet filter panel. A 15-conductor flat ribbon cable with a 15-pin D-type female connector at one end and a 15-pin D-type male connector at the other.

**Length**—2.1 m (7 ft)

## QCAD129 Connector Cable

**Purpose**—Connects QPC472 DTI Echo Canceler connector (J4) to the cabinet filter panel in a shielded cabinet or directly to the Echo Canceller via a standard RS-232-C cable.

**Features**—A 10-conductor twisted pair cable with a 15-pin D-type male connector at one end and a 25-pin D-type female connector at the other.

## QCAD130 Connector Cable

**Purpose**—Connects QPC472 DTI Reference Clock connector (J1 or J2) to the QPC471 Clock Controller.

**Features**—A 9-conductor flat ribbon cable terminated at both ends with a 9-pin D-type connector.

## QCAD133 PRI/DTI I/O to MDF Cable

**Purpose**—Provides shielded cable pairs to connect the PRI or DTI card to the MDF through the I/O panel. Also, connects the 15-pin I/O filter connector to the 15-pin (Network Channel Terminating Equipment (NCTE) connector.

**Length**—15.2 m (50 ft)

## QCAD274A AC Power Cord

**Purpose**—Connects to an IG-L6-30 30-amp receptacle and conducts AC power to the NT6D52 rectifier.

**Length**—2.7 m (9 ft)

## QCAD281 Connector Cable

**Purpose**—Used to connect a digital trunk or I/O panel to a cross-connect terminal.

## QCAD282 Connector Cable

**Purpose**—Used to connect a digital trunk to an I/O panel (EMI systems only).

## QCAD328 PRI to DCHI Cable

**Purpose**—Connects the DCHI port (J5) on the QPC720 PRI Card to the odd port (J2) on the QPC757 DCHI Card.

**Lengths**—

- QCAD328A 1.8 m (6 ft)
- QCAD328B 5.5 m (18 ft)
- QCAD328C 10.6 m (35 ft)
- QCAD328D 15.2 m (50 ft)

## QCAD332/333 3-Port SDI Cables

**Purpose**—Used to cable three SDI ports.

- QCAD332, 3 male to 1 female (internal ST cabinet use)
- QCAD333, 1 male to 3 female (external cabinet use)

## QCB12/13 Connector Cable

**Purpose**—To connect the QPC130 CDR tape control to the magnetic tape unit. Refer to *Call Detail Recording: Description and Formats* (553-2631-100).

# Miscellaneous equipment

## Content list

The following are the topics in this section:

A0345353 A/B-Switch . . . . . 198
A0377992 Black Box ABCDE-Switch . . . . . 198
A0638930 UDS FastTalk v.32/42b . . . . . 198
A0601396 Nullmodem . . . . . 198
A0601397 Nullmodem . . . . . 198
A0633651 40MB PCMCIA Flash Card . . . . . 199
A0773056, A0773059, A0773054, A0773055, A0634492, A0634493 Fiber Remote Multi-IPE . . . . . 199
A0634494 Fiber Remote Multi-IPE Rack Mount Shelf Option . . . . . 199
A0660403 3MB PCMCIA Flash Card . . . . . 200
NT5D52AA Ethernet Adapter card . . . . . 201
NT5D62 PCMCIA Hard Drive card . . . . . 201
NT7D0902 Rear Mount Conduit Kit . . . . . 202
NT7R94AA Bracket for Small Cabinet I/O Panel Assembly . . . . . 202
NT8D63 Overhead Cable Tray Kit . . . . . 202
NT8D1107 Superloop Adapter Plate . . . . . 202
P0745716 Universal I/O Panel . . . . . 202
P0741489 Backplane Cable Extraction Tool . . . . . 202
P0906308 cPCI Card Slot Filler Panel . . . . . 203
NT7D05 and NT8D31 Blank faceplates . . . . . 204

NT8D64 Earthquake bracing kit . . . . . 204

## A0345353 A/B-Switch

**System hardware**—Options 51C/61C/81C

**Purpose**—Connects a remote PC, used as a Meridian 1 Companion diagnostic terminal, to Meridian 1. If also used for other applications, disconnects it from Meridian 1.

## A0377992 Black Box ABCDE-Switch

**System hardware**—Options 51C/61C/81C

**Purpose**—Connects multiple SDI and CPSI ports to one terminal or one modem.

## A0638930 UDS FastTalk v.32/42b

**System hardware**—Option 81C

**Purpose**—Verified for operation with Option 81C. Provides 9600 baud transmission. Equipped with a 6-ft power cord for a standard 110 V ac wall socket, a cable that connects to an RJ-11C jack, and an internal telephone jack for voice capability.

## A0601396 Nullmodem

**System hardware**—Options 51C/61C/81C.

**Purpose**—Compact DB-25F/DB-25M nullmodem adapter.

## A0601397 Nullmodem

**System hardware**—Options 51C/61C/81C.

**Purpose**—Compact DB-25F/DB-25F nullmodem adapter.

## A0633651 40MB PCMCIA Flash Card

**System hardware**—Options 51C/61C/81C which are running software Release 21 and later software, and are equipped with the NTAG36 Meridian Integrated RAN (MIRAN) card.

**Purpose**—This PCMCIA Flash card provides additional memory storage when loaded on to an NTAG36 Meridian Integrated RAN (MIRAN) card. 1 MB of Flash memory provides up to two minutes of additional storage. This card provides over one hour of additional memory storage to MIRAN.

## A0773056, A0773059, A0773054, A0773055, A0634492, A0634493 Fiber Remote Multi-IPE

**System hardware**—Options 51C/61C/81C.

**Purpose**—Provides Meridian 1 functionality to a Remote IPE via a fiber optic span. Select one of the following four varieties, depending on your environment:

- A0773056: Fiber Remote Multi-IPE - Single-mode (1-4 superloops)
- A0773059: Fiber Remote Multi-IPE - Single-mode (1-2 superloops)
- A0773054: Fiber Remote Multi-IPE - Multi-mode (1-4 superloops)
- A0773055: Fiber Remote Multi-IPE - Multi-mode (1-2 superloops)
- A0634492: Fiber Remote Multi-IPE - Single-mode, redundant option
- A0634493: Fiber Remote Multi-IPE - Multi-mode, redundant option

***Note:*** The 1-2 superloop or 1-4 superloop version refers to the number of superloops transmitted over a single fiber span.

**Quantity**—One per Meridian 1 (required), and up to one per remote IPE.

## A0634494 Fiber Remote Multi-IPE Rack Mount Shelf Option

**System hardware**—Option51C/61C/81C.

**Purpose**—Provides equipment to rack-mount the Fiber Remote Multi-IPE

**Quantity**—One per Fiber Remote Multi-IPE where rack mounting is desired.

## A0660403 3MB PCMCIA Flash Card

**System hardware**—Options 51C/61C/81C which are running software Release 21 and later software, and are equipped with the NTAG36 Meridian Integrated RAN (MIRAN) card.

**Purpose**—This PCMCIA Flash card allows software enhancements or maintenance upgrades to be loaded on to the card and installed onto the NTAG36 MIRAN card.

## NTND33GA Cable Kit for CP3 and CP4 systems (CNI3 faceplate connection)

**System hardware**—Option 81C

**Purpose**—Provides the hardware to connect a Core using CP3 and CP4 processors to one Network group, when the connection is made to the faceplate of the CNI3 cards. Only faceplate connections from the CNI3 (NTRB34) will use this kit. The NTND33GA kit contains the following:

- four NTND94EA CNI3 faceplare to I/O panel cables
- four NT8D76BD 5-ft I/O panel to 3PE cables (network shelf)
- four NTND28BE 35-ft. Inter-cabinet screened cables
- four A0360683 Adaptor connectors
- four P0745713 I/O panels
- eight P0738866 cable lables
- hardware
- cable ties

This kit will replace four NT9D89 cables that connect the CPU Core to a network shelf, if the network were located in the same row as the Core.

## NTND33FA Cable Kit for CP3 and CP4 systems (backplane connection)

**System hardware**—Option 81C

**Purpose**—Provides the hardware to connect a Core using CP3 and CP4 processors to one Network group, when the connection is made to the rear of the CNI cards. All backplane connections for the CNI3 (NTRB34) will use this kit. The NTND33FA kit contains the following:

- four NTND94DA CNI to I/O panel cables
- four NTND95AA I/O panel to 3PE cables (network shelf)
- four NTND28BE 35-ft. Inter-cabinet screened cables
- four A0360683 Adaptor connectors
- four P0745713 I/O panels
- eight P0738866 cable lables
- hardware
- cable ties

This kit will replace four NTND14 cables that connect the CPU Core to a network shelf, if the network were located in the same row as the Core.

## NTND33HA Cable Kit for CP PII systems

**System hardware**—Option 81C

**Purpose**—Provides the hardware to connect a Core using CP PII processors to one Network group.

## NT5D52AA Ethernet Adapter card

**System hardware**—Options 51C/61C/81C.

**Purpose**—This adapter card is installed on the IPE module I/O panel only when the NT5D51 Meridian Integrated Conference Bridge (MICB) card is to be connected to the Ethernet.

## NT5D62 PCMCIA Hard Drive card

**System hardware**—Options 51C/61C/81C.

**Purpose**—This PCMCIA card contains the software and configuration for the NT5D51 Meridian Integrated Conference Bridge (MICB) card. It must be installed into the lower PCMCIA drive for the MICB card to operate.

## NT7D0902 Rear Mount Conduit Kit

**System hardware**—Options 51C/61C/81C (DC-power)

**Purpose**—Allows conduit to enter the NT7D67CB PDU from the rear (above the floor).

## NT7R94AA Bracket for Small Cabinet I/O Panel Assembly

**System hardware**—All

**Purpose**—Bracket that modifies the Fibre Remote Carrier IPE cabinet so that the I/O panel assembly can connect to the Small Carrier Remote IPE cabinet.

**Quantity**—One per Small Carrier Remote IPE cabinet.

## NT8D63 Overhead Cable Tray Kit

**System hardware**—All

**Purpose**—Holds I/O cables that go from the system to the MDF. Provides support for overhead cabling tray. Mounts to the highest module in each column. Though this kit does NOT include the cable tray, it does contain:

- support brackets
- front and rear top cap air grills with cutouts

## NT8D1107 Superloop Adapter Plate

**System hardware**—All

**Purpose**—Reduces the QPC414 network loop cutout to accept a superloop connection.

## P0745716 Universal I/O Panel

**System hardware**—All

**Purpose**—Provides increased I/O panel capacity for QPC414 network loops that must extend outside the Meridian 1 module, or other connectivity provided by this panel.

## P0741489 Backplane Cable Extraction Tool

**System hardware**—Options 51C/61C

**Purpose**—Used to disconnect cable connectors attached to the rear of the backplane in the NT5D21 Core/Network Module.

## P0906308 cPCI Card Slot Filler Panel

**System hardware**—Option 81C

**Purpose**—Used to cover slots, c10 - c 12, which do not contain cCNIs, and slots c13 and c14.

# NT7D05 and NT8D31 Blank faceplates

**System hardware**—All

**Purpose**—An NT7D05 filler panel is required in a slot reserved for the ringing generator when a ringing generator is not used. Although not required, other unoccupied slots can be covered by any of the following blank faceplates, depending on the width of the slot:

- NT8D31AA 2.2 cm (0.875 in.)
- NT8D31AB 2.5 cm (1 in.)
- NT8D31AD 5 cm (2 in.)

# NT8D64 Earthquake bracing kit

**System hardware**—All

**Purpose**—Holds all the parts of a column in place during a major physical disruption such as an earthquake. Used only for non-raised floor. Each kit contains:

- four threaded rods
- two tie bars
- miscellaneous hardware (such as nuts and washers)

Three earthquake bracing kits are available:

- NT8D64AA for two module columns
- NT8D64AB for three module columns
- NT8D64AC for four module columns

# List of terms

Table 5 on page 205 lists all of the mnemonics used in this document and their definitions.

**Table 5**
**Glossary (Part 1 of 6)**

| Mnemonic | Description |
|---|---|
| ACD | Automatic Call Distribution |
| ADM | Add-On Data Module |
| AIM | Asynchronous Interface Module |
| AIOD | Automatically Identified Outward Dialing |
| ALU | Arithmetic Logic Unit |
| ANI | Automatic Number Identification |
| AOP | Attendant Overflow Position |
| ASIM | Asynchronous/Synchronous Interface Module |
| ATX | Autodial Tandem Transfer |
| BKI | Break-In |
| BLF | Busy Lamp Field |
| bps | Bits Per Second |
| BRI | Basic Rate Interface |
| BRIT | Basic Rate Interface Trunk |
| BTU | Bus Terminating Unit |
| CALL ID | Call ID |
| CAMA | Centralized Automatic Message Accounting |
| CAS | Centralized Attendant Service |
| CASM | Centralized Attendant Service—Main |

**Table 5**
**Glossary (Part 2 of 6)**

| Mnemonic | Description |
|---|---|
| CASR | Centralized Attendant Service—Remote |
| CBT | Core Bus Terminator |
| CC | Clock Controller |
| CDR | Call Detail Recording |
| CDRX | Call Detail Recording Enhancement |
| CE | Common Equipment |
| CGM | Console Graphics Module |
| CIM | Control, Interface, and Memory |
| CMA | Changeover and Memory Arbitrator |
| CMDU | Core Multi Drive Unit |
| CNI | Core Network Interface |
| CO | Central Office |
| CP | Call Processor |
| CPI | Computer Private Branch Exchange Interface |
| CPND | Call Party Name Display |
| CPU | Central Processing Unit |
| CRT | Cathode Ray Tube |
| CT | Control and Timing |
| DASS2 | Digital Access Signaling System 2 |
| DCE | Data Communication Equipment |
| DCHI | D-Channel Handler Interface |
| DCK | Recorded Telephone Dictation Trunk feature |
| DID | Direct Inward Dialing |
| DLB | Dual Loop Peripheral Buffer |
| DOD | Direct Outward Dialing |
| DPNSS1 | Digital Private Network Signaling System 1 |
| DTE | Data Terminal Equipment |
| DTI | Digital Trunk Interface |
| DTMF | Dual Tone Multifrequency |

**Table 5**
**Glossary (Part 3 of 6)**

| Mnemonic | Description |
|---|---|
| DTR | Digitone Receiver |
| EAR | Enhanced ACD Routing |
| ECT | Enhanced Call Treatment |
| EDRG | Executive Distinctive Ringing |
| EIA | Electronic Industry Association |
| EMI | Electromagnetic Interference |
| EQA | FCC Equal Access |
| ESN | Electronic Switched Network |
| EURO | Euro ISDN |
| FCDR | Format of Call Detail Recording |
| FDI | Floppy Disk Interface |
| FDM | Floppy Disk Module |
| FDU | Floppy Disk Unit |
| FM | Fully Modular |
| FN | Function |
| FRTA | French Type Approval |
| GRPI | 1.5/2.0 Mbps ISDN Gateway |
| HOSP | Hospital Management |
| HSDC | High Speed Data Card |
| ICM | Integrated CPU/Memory |
| IDA | Integrated Digital Access |
| IGS | InterGroup Switch |
| INDB | International nB+D |
| I/O | Input/Output |
| IODU/C | Input/Output Disk Unit with CD-ROM |
| IOP | I/O Processor |
| IOP/CMDU | I/O Processor/Core Multi Drive Unit |
| IPB | InterProcessor Bus |
| IPE | Intelligent Peripheral Equipment |

**Table 5**
**Glossary (Part 4 of 6)**

| Mnemonic | Description |
|---|---|
| ISDLC | Integrated Services Digital Line Card |
| ISDN | Integrated Services Digital Network |
| IVR | Hold in Queue for Interactive Voice Response |
| KD3 | Spanish Signaling Protocol |
| LCD | Liquid Crystal Display |
| LRE | Logic Return Equalizer |
| MCA | Meridian Communications Adapter |
| MCDR | Mini Call Detail Recording |
| MCDS | Multi-Channel Data System |
| MDF | Main Distribution Frame |
| MDU | Multi Disk Unit |
| MFC | Multifrequency Compelled Signaling |
| MFS | Multifrequency Signaling |
| MGC | Multigroup Control |
| MGE | Multigroup Extender |
| MGS | Multigroup Switch |
| MISP | Multipurpose ISDN Signaling Processor |
| MLIO | Multi-Language I/O |
| MLM | Meridian Link Module |
| MPDU | Module Power Distribution Unit |
| MSDL | Multipurpose Serial Data Link |
| MSI | Mass Storage Interface |
| MSPS | Misc/SDI/Peripheral Signaling |
| MSU | Mass Storage Unit |
| NT1 | Network Termination Unit |
| OAID | Outgoing Automatic Incoming Dial |
| OANI | Outgoing Automatic Number Identification |
| OPAO | Outpulsing of Asterisk and Octothorpe |
| OPX | Off-Premises Extension |

**Table 5**
**Glossary (Part 5 of 6)**

| Mnemonic | Description |
|---|---|
| ORC | Originator Ringing Control |
| OVLP | Overlap Signaling |
| PAD | Packet Assembler/Disassembler |
| PBX | Private Branch Exchange |
| PCM | Pulse Code Modulation |
| PDU | Power Distribution Unit |
| PE | Peripheral Equipment |
| PFTU | Power Failure Transfer Unit |
| PHNT | Phantom Terminal Number Operation |
| PPM | Periodic Pulse Metering |
| PRA | Primary Rate Access |
| PRI | Primary Rate Interface |
| PROM | Programmable Read-Only Memory |
| PTE | Packet Transport Equipment |
| QM | Quarter Modular |
| QSDI | Quad Serial Data Interface |
| RAM | Random Access Memory |
| RAN | Recorded Announcement |
| RFI | Radio-Frequency Interference |
| ROM | Read-Only Memory |
| RPE | Remote Peripheral Equipment |
| RTC | Real-Time Clock |
| SAMM | Stand-Alone Meridian Mail |
| SBE | Segmented Bus Extender |
| SCG | System Clock Generator |
| SCSI | Small Computer System Interface |
| SDI | Serial Data Interface |
| SEQ | Sequencer |
| SILC | S/T Interface Line Card |

**Table 5**
**Glossary (Part 6 of 6)**

| Mnemonic | Description |
|---|---|
| SML | System Message Lookup |
| TCM | Time Compression Multiplexing |
| TDS | Tone and Digit Switch |
| THF | Trunk Hook Flash |
| TOPS | Traffic Operator Position System |
| TSPS | Traffic Service Position System |
| TTY | Teletype Machine |
| UEM | Universal Equipment Module |
| UK | United Kingdom |
| UILC | Universal Interface Line Card |
| UPS | Uninterruptible Power Supply |
| VNS | Virtual Network Services |
| XMFC | Extended Multifrequency Compelled Signaling |
| XMFE | Extended Multifrequency Signaling For Socotel |
| 2DR | Two-Way, Dial Repeating |
| 3PE | Three-Port Extender |

# Index

## Symbols

µ-Law applications
NT5K02DA Flexible Analog Line Card (France), 65
NT5K18 Flexible Central Office Trunk Card, 74
NT5K21AA Extended Multifrequency Compelled Sender/Receiver, 78
NT5K48 Tone Detector Card, 80
NT5K72AA E&M Tie Trunk Card, 88
NT5K82BA/CA Central Office Trunk Card, 89
NT5K82HA Central Office Trunk Card, 90
NT5K83AA E&M Tie Trunk Card, 91
NT5K83DA E&M Tie Trunk Card, 95
NT5K83FA E&M Tie Trunk Card, 97
NT5K83GA E&M Tie Trunk Card, 98
NT5K83HA E&M Tie Trunk Card, 99
NT5K84HA Direct Dial Inward Trunk Card, 103
NT5K93AA Central Office Trunk Card, 105
NT5K93BA Central Office Trunk Card (Norway), 106
NT8D15 E&M Trunk Card, 117
NTCK22AA Direct Inward Dial Trunk Card (Italy), 126
QPC71 E&M/DX/Paging Trunk Card, 130
QPC311 Data Line Card, 131
QPC327 MFC Sender/Receiver Card, 131
QPC391 Pulsed E&M Trunk Card, 132
QPC449 Loop Signaling Trunk Card, 134
QPC450 CO/FX/WATS Trunk Card, 134
QPC452 Basic 500/2500 Line Card, 135
QPC491 SL-1 Set Line Card, 135
QPC532 Ground Button Recall Line Card, 138
QPC574 Digitone Receiver, 139
QPC577 Digitone Receiver DaughterBoard, 140
QPC577 Digitone Receiver Daughterboard, 140
QPC594 500/2500 Line Card, 140
QPC650 Music Trunk Card, 142

## Numerics

3PE to Connector Housing Cable (NTND95), 189
3-Port SDI Cables (QCAD332/333), 195
4-Port Data Line Card (QPC432), 133
3 MB PCMCIA Flash Card (A0660403), 200
40 MB PCMCIA Flash Card (A0633651), 199
500/2500 Line Card (QPC267), 131
500/2500 Line Card (QPC452), 135
500/2500 Line Card (QPC494), 135
500/2500 Line Card (QPC521), 137
500/2500 Line Card (QPC594), 140
500/2500 Line Card (QPC60), 130

## A

A0321130 Fan Unit, 25
A0345353 A/B-Switch, 197
A0355200 Power Failure Transfer Unit, 27
A0367916 Power Supply –48V, 27
A0377992 Black Box ABCDE-Switch, 198
A0381391 UDS FastTalk v.32/42b, 198
A0601396 Nullmodem, 198
A0601397 Nullmodem, 198
A0601464 Nullmodem Maintenance cable, 159
A0633651 40 MB PCMCIA Flash Card, 199

A0634488 Fiber Remote Multi-IPE, 199
A0634489 Fiber Remote Multi-IPE, 199
A0634490 Fiber Remote Multi-IPE, 199
A0634491 Fiber Remote Multi-IPE, 199
A0634492 Fiber Remote Multi-IPE, 199
A0634493 Fiber Remote Multi-IPE, 199
A0634494 Fiber Remote Multi-IPE Rack Mount Shelf Option, 199
A0634495 Local Fiber Remote Multi-IPE Cable, 159
A0634496 Remote Fiber Remote Multi-IPE Cable, 159
A0634497 Fiber Remote Multi-IPE Maint. Cable, 160
A0660403 3 MB PCMCIA Flash Card, 200
ABCDE-Switch (A0377992), 198
A/B-Switch (A0345353), 197
AC Power Cord (NT8D40AA), 170
AC Power Cord (QCAD274A), 194
acronyms glossary, 205
Add-on Data Module (QMT12), 150
administration terminal (M7310), 149
Air Probe Harness AC (NT8D46AM), 32, 173
Air Probe Harness DC (NT8D46DC), 32, 175
A-Law applications
  NT5K02DA Flexible Analog Line Card (France), 65
  NT5K18 Flexible Central Office Trunk Card, 74
  NT5K21AA Extended Multifrequency Compelled Sender/Receiver, 78
  NT5K48 Tone Detector Card, 80
  NT5K70AB Central Office Trunk Card, 84
  NT5K71AB Central Office Trunk Card, 86
  NT5K72AA E&M Tie Trunk Card, 88
  NT5K82BA/CA Central Office Trunk Card, 89
  NT5K82HA Central Office Trunk Card, 90
  NT5K83AA E&M Tie Trunk Card, 91
  NT5K83DA E&M Tie Trunk Card, 95
  NT5K83FA E&M Tie Trunk Card, 97
  NT5K83GA E&M Tie Trunk Card, 98
  NT5K83HA E&M Tie Trunk Card, 99
  NT5K84HA Direct Dial Inward Trunk Card, 103
  NT5K93AA Central Office Trunk Card, 105
  NT5K93BA Central Office Trunk Card (Norway), 106
  NT5K99AA/BA Central Office Trunk Card, 108
  NT8D15 E&M Trunk Card, 117
  NTCK22AA Direct Inward Dial Trunk Card (Italy), 126
  QPC327 MFC Sender/Receiver Card, 131
  QPC341 Data Line Card, 131
  QPC343 Modem Pool Line Card, 132
  QPC390 Pulsed E&M Trunk Card, 132
  QPC520 SL-1 Line Card, 136
  QPC521 500/2500 Line Card, 137
  QPC526 CO/FX/WATS Trunk Card with PPM, 137
  QPC527 CO/FX/WATS Trunk Card, 137
  QPC532 Ground Button Recall Line Card, 138
  QPC558 Message Waiting Line Card, 139
  QPC559 Loop Signaling Trunk Card, 139
  QPC595 Digitone Receiver, 141
  QPC596 Digitone Receiver Daughterboard, 141
  QPC651 Music Trunk Card, 142
Analog Line Card (NT5K02AB), 64
Analog Line Card (NT5K02DA), 65
Analog Line Card (NT5K02JA), 66
Analog Line Card (NT5K02KA), 66
Analog Line Card (NT5K02LB), 67
Analog Line Card (NT5K02MA), 68
Analog Line Card (NT5K02NB), 68
Analog Line Card (NT5K02SA), 69
Analog Line Card (NT5K96JA), 107
Analog Line Card (NT5K96KA), 107
Analog Line Card (NT5K96MA), 107
Analog Line Card (NT5K96NB), 107
Analog Line Card (NT5K96SA), 108
Analog Line Card (NT8D03), 114
Analog Message Waiting Line Card (NT8D09), 114
application equipment modules
  related documentation, 12
Argentina

Generic Central Office Trunk Card (NTCK16), 124
asynchronous data options, 150
Asynchronous Interface Line Card (QPC430), 133
Asynchronous/Synchronous Interface Module (QMT11), 149
attendant administration overlay template, 150
Attendant Console Monitor Card (QPC297), 131
Attendant Console Monitor Card (QPC342), 131
attendant handset assembly, 150
Audio Cable (NTAG81AA), 184
Australia
Central Office Trunk Card (NT5K82BA/CA), 89
Direct Dial Inward (DDI) Trunk Card (NT5K84BA), 102
E&M Tie Trunk Card (NT5K83EA), 96
Flexible Analog Line Card (NT5K02AB), 64
Austria
Central Office Trunk Card (NT5K70AB), 84
Central Office Trunk Card (NT5K71AB), 86
DID/DOD Trunk Card (NT5K36AB), 79
Direct Inward Dial Auto Answer Circuit (NT5K92AA), 105
E&M Tie Trunk Card (NT5K72AA), 87

## B

Bahrain
Generic Central Office Trunk Card (NTCK16), 124
base station
COMPANION C1110, 148, 149
Basic 500/2500 Line Card (QPC452), 135
Basic Rate Concentrator Signaling Card (NT6D72), 111
Battery Distribution Box (QBL12), 34
Belgium
Central Office Trunk Card (NT5K82HA), 90
Direct Inward Dial (DID) Trunk Card (NT5K84HA), 103
E&M Tie Trunk Card (NT5K83HA), 99
Black Box ABCDE-Switch (A0377992), 198
blank faceplates, 204
blower units, 32
Bracket-Small Cabinet I/O Ass'y (NT7R62AA), 202
Brazil
NTCK16 Generic Central Office Trunk Card, 124
Bypass Faceplate Cable Harness (NPS50843-7L02), 161

## C

C3020 Shaye Handset, 147
cabinets, 15
Cable Assembly (NT5K53AA), 166
Cable Assembly (NT5K54AA), 166
Cable Assembly (NT5K63AA), 166
Cable Assembly (NT5K64AA), 167
Cable Assembly (NT5K65AA), 167
Cable Assembly (NT5K66AA), 167
Cable Assembly (NT5K79AA), 167
Cable Assembly (NT5K80AA), 168
Cable Assembly (NT5K81AA), 168
Cable Assembly (NTAG01AA), 184
Cable Assembly (NTAG02AA), 184
Cable Tray Kit (NT8D63), 202
cables, 153
Call Processor Card (NT5D03), 39
Call Processor Card (NT5D10), 40
Call Processor Card (NT9D19), 48
card cage assemblies, 22
card slot assignment documentation, 16
Carrier Remote DC Power Cable (NTAK410), 185
Carrier Remote Inter-cabinet Cable (NTAK1204), 185
CE Cabinet (QCA55), 23
CE Module Power Distribution Unit (NT8D56AA), 33
CE Power Supply AC (NT8D29), 31
CE Power Supply DC (NT6D41), 29
Central Office Trunk Card (NT5K18BA), 75
Central Office Trunk Card (NT5K70AA), 84
Central Office Trunk Card (NT5K71AA), 85
Central Office Trunk Card (NT5K71AB), 86

Central Office Trunk Card (NT5K82AA), 88
Central Office Trunk Card (NT5K82BA/CA), 89
Central Office Trunk Card (NT5K82HA), 90
Central Office Trunk Card (NT5K90AA), 104
Central Office Trunk Card (NT5K90BA), 104
Central Office Trunk Card (NT5K93AA), 105
Central Office Trunk Card (NT5K93BA), 106
Central Office Trunk Card (NT5K99AA/BA), 108
Central Office Trunk Card (NTAG03AA), 118
Central Office Trunk Card (NTCK16), 123
Central Office Trunk Card (NTCK18AA), 125
Central Office/Direct Inward Dial Trunk Card (NTAG04AA), 119
CE/PE Module Power Distribution Unit (NT8D56AC), 33
CE/PE Power Supply DC (NT6D43), 30
Chile
    Generic Central Office Trunk Card (NTCK16), 124
CLASS Modem Card (NT5D60AA), 62
Clock Controller Card (QPC471), 50
Clock Controller to Clock Controller Cable (NT8D75), 175
Clock Controller to I/O Panel Cable (NT1R04), 163
Clock Controller to Junctor Cable (NT8D74), 175
CMLC Maintenance Cable (NPS90781-20L02), 162
CMRC Maintenance Cable (NPS90781-20L01), 161
CNI to I/O Panel Cable (NTND94), 189
Coaxial Interface Adapter Cable (NT7D68EA), 170
CO/FX/WATS Trunk Card (NT9C14AA), 117
CO/FX/WATS Trunk Card (QPC450), 134
CO/FX/WATS Trunk Card (QPC527), 137
CO/FX/WATS Trunk Card (QPC528), 138
CO/FX/WATS Trunk Card with PPM (QPC525), 137
CO/FX/WATS Trunk Card with PPM (QPC526), 137
Column Spacer Kit (NT8D49), 21
columns
    top caps for, 23
common equipment cards, 35
COMPANION C1110 Base Station, 148, 149
COMPANION Meridian 1 Line Card (NTCK93), 62, 127, 128
COMPANION Meridian 1 Radio Card (NTCK91), 127
components and pedestals, 23
Conduit Kit (NT7D0902), 199
Conference/TDS Card (NT8D17), 46
Conference/TDS to Music Trunk Cable (NT8D87), 179
Connector Cable (QCA328AD), 191
Connector Cable (QCAD110A), 192
Connector Cable (QCAD115A), 192
Connector Cable (QCAD116A), 192
Connector Cable (QCAD117A), 192
Connector Cable (QCAD118A), 192
Connector Cable (QCAD119A), 192
Connector Cable (QCAD120A), 192
Connector Cable (QCAD121A), 192
Connector Cable (QCAD122A), 193
Connector Cable (QCAD123A), 193
Connector Cable (QCAD124A), 193
Connector Cable (QCAD125A), 193
Connector Cable (QCAD128), 193
Connector Cable (QCAD129A), 194
Connector Cable (QCAD130A), 194
Connector Cable (QCAD172A), 194
Connector Cable (QCAD281), 194
Connector Cable (QCAD282), 194
Connector Cable (QCAD38A), 191
Connector Cable (QCAD40A), 191
Connector Cable (QCAD42A), 191
Connector Cable (QCB12/13), 195
Console Adjustable Stand, 150
Console Graphics Module/Busy Lamp Field, 151
consoles, 131, 143
Controller Card (NT8D01), 112
Controller to I/O Cable (NT8D92AB), 180
Controller-2 Card (NT8D01AD), 113
Controller-4 Card (NT8D01AC), 112
conversion package documentation, 12
cooling equipment, 25
Core Module Upgrade Kit (NTND33), 188

Core Multi Drive Unit (NT5D20), 40
Core to Network Interface Card (NT6D65), 43
Core/Network Module (NT5D21), 16
CP to CP Cable (NTND11), 185, 187
CP to I/O Panel Ethernet Cable (NT7D90), 171
CP to I/O Panel RS-232 Cable (NT7D89), 169
CPU Interface Cable (NT8D80), 176
CPU to Network Cable (NT8D99), 182

## D

Data Access Card (NT7D16), 111
Data Cartridge (QMM42), 49
Data Line Card (QPC311), 131
Data Line Card (QPC341), 131
DBX Ribbon Cable (NT5D50AA), 165
DDI Trunk Card (NT5K17), 73
DDI Trunk Card (NT5K17BA), 73
DDI Trunk Card (NT5K84BA), 102
Denmark
    Central Office Trunk Card (NT5K90AA), 104
    Central Office Trunk Card (NT5K90BA), 104
    E&M Tie Trunk Card (NT5K83BA), 92
    Flexible Analog Line Card (NT5K02JA), 66
    Flexible Analog Line Card (NT5K96JS), 107
    Tone Detector Card (NT5K48BA), 81
Dial Tone Detector (QPC450), 138
DID Tester
    NT5K92AA Direct Inward Dial Auto Answer Circuit, 105
DID Trunk Card (NT5K84AA), 101
DID Trunk Card (NT5K84HA), 103
DID Trunk Card (QPC550), 138
DID/DOD Trunk Card (NT5K36AA), 79
DID/DOD Trunk Card (NT5K36AB), 79
Digital Line Card (NT8D02), 113
Digital Trunk Interface Card (QPC915), 52
Digitone Receiver (QPC574), 139
Digitone Receiver (QPC595), 141
Digitone Receiver Card (NT8D16), 117
Digitone Receiver Daughterboard (QPC557), 140
Digitone Receiver Daughterboard (QPC596), 141
Direct Dial Inward Trunk Card (NT5K17), 73
Direct Inward Dial Trunk Card (NTCK22AA), 126
disk units, 48
documentation and additional references, 11, 14, 15
DTMF Receiver (NT5K09), 72
Dual DTI/PRI (DDP) Card (NT5D12AA), 41
Dual Loop Peripheral Buffer (NT5K10), 72
Dual Loop Peripheral Buffer Card (QPC659), 142
Dual SDI Cable (NTND37), 189

## E

E&M Tie Trunk Card (NT5K19BA), 76
E&M Tie Trunk Card (NT5K50AA), 82
E&M Tie Trunk Card (NT5K72AA), 87
E&M Tie Trunk Card (NT5K83AA), 91
E&M Tie Trunk Card (NT5K83BA), 92
E&M Tie Trunk Card (NT5K83CA), 93
E&M Tie Trunk Card (NT5K83DA), 94
E&M Tie Trunk Card (NT5K83EA), 96
E&M Tie Trunk Card (NT5K83FA), 97
E&M Tie Trunk Card (NT5K83GA), 98
E&M Tie Trunk Card (NT5K83HA), 99
E&M Trunk Card (NT8D15), 116
E&M/DX/Paging Trunk Card (QPC71), 130
E1 Local Maintenance Cable Assembly (NT7R67AA), 171
E1 Remote Carrier/Alarm Cable Assembly (NT7D68EA), 170
earthquake bracing kit, 204
Egypt
    Generic Central Office Trunk Card (NTCK16), 124
electromagnetic interference (EMI), 14
EMI, electromagnetic interference, 14
EMSI to MDU Data Cable (NT9D89), 182
EMSI to SMDU Data Cable (NT9D47), 182
EMSI to SMDU Power Cable (NT9D66), 182
Enhanced Existing Peripheral Equipment Module (NT5K11), 19
Enhanced Multi-frequency Receiver (NTAG26), 120
equipment
    availability, 13
    conversion and expansion packages, 12
    determining system requirements, 12

packaging, 15
expansion package documentation, 12
Extender Tone Detector (NT5K20), 78
extension kits, 204
Extension Local Carrier Cable Assembly (NT7D69AA), 170
Extension Local Maintenance Cable Assembly (NT7D69BA), 170
External Alarm Cable (NT1P85AA), 163
External DCHI Cable (NTCK46), 186
External MSDL Cable (NTCK80), 186, 187
Extraction Tool (P0741489), 202

## F

faceplates, 204
Fan Unit (A0321130), 25
Fiber Remote Multi-IPE (A0634488), 199
Fiber Remote Multi-IPE (A0634489), 199
Fiber Remote Multi-IPE (A0634490), 199
Fiber Remote Multi-IPE (A0634491), 199
Fiber Remote Multi-IPE (A0634492), 199
Fiber Remote Multi-IPE (A0634493), 199
Fiber Remote Multi-IPE Maint. Cable (A0634497), 160
Fiber Remote Multi-IPE Rack Mount Shelf Option (A0634494), 199
Fibre Electro-optical Interface (NT1P63), 36
Fibre Optic Patchcord (NT1P64AA), 162
Fibre Optic Patchcord (NT1P75AA), 162
Fibre Peripheral Controller Card (NT1P62), 58
Fibre Peripheral Controller to I/O Panel Cable (NT1P78AA), 162
Fibre Superloop Network Card to I/O Panel Cable (NT1P76AA), 162
Field Wiring Kit (NT6D54), 169
Finland
Central Office Trunk (NT5K70AB)Card, 84
Central Office Trunk Card (NT5K70AA), 84
E&M Tie Trunk Card (NT5K72AA), 87
Flexible Analog Line Card (NT5K02), 59
Flexible Analog Line Card (NT5K02AB), 64
Flexible Analog Line Card (NT5K02DA), 65
Flexible Analog Line Card (NT5K02JA), 66
Flexible Analog Line Card (NT5K02KA), 66
Flexible Analog Line Card (NT5K02LB), 67
Flexible Analog Line Card (NT5K02MA), 68
Flexible Analog Line Card (NT5K02NB), 68
Flexible Analog Line Card (NT5K02SA), 69
Flexible Central Office Trunk Card (NT5K18), 74
Flexible E&M Trunk Card (NT5K19), 76
Floppy Disk Unit (NT8D68), 48
Four-Port Serial Data Interface Card (QPC841), 52
France
Direct Inward Dial Auto Answer Circuit (NT5K92AA), 105
E&M Tie Trunk Card (NT5K50AA), 82
Flexible Analog Line Card (NT5K02DA), 65
Front/Rear Cover (NT8D55), 21

## G

Generic Central Office Trunk Card (NTCK16), 123
Germany
Central Office Trunk Card (NT5K70AA), 84
Central Office Trunk Card (NT5K70AB), 84
Central Office Trunk Card (NT5K71AA), 85
Central Office Trunk Card (NT5K71AB), 86
DID/DOD Trunk Card (NT5K36AA), 79
DID/DOD Trunk Card (NT5K36AB), 79
Direct Inward Dial Auto Answer Circuit (NT5K92AA), 105
E&M Tie Trunk Card (NT5K72AA), 87
glossary
acronyms, 205
mnemonics, 205
Ground Button Recall Line Card (QPC343), 131
Ground Button Recall Line Card (QPC532), 138

## H

Handset Assembly (Attendant), 150
harnesses, 31, 34, 169, 172
Holland
Central Office Trunk Card (NTAG03AA), 118
Central Office/Direct Inward Dial Trunk Card (NTAG04AA), 119
E&M Tie Trunk Card (NT5K83DA), 94
Flexible Analog Line Card (NT5K02KA), 66

Flexible Analog Line Card (NT5K96KA), 107
Hong Kong
Universal Trunk Card (NT5K07), 70

## I

Indonesia
Generic Central Office Trunk Card (NTCK16), 124
Integrated Services Digital Line Card (QPC578), 140
Intelligent Peripheral Equipment Module (NT8D37), 20
Interboard Faceplate Cable Harness (NPS50843-7L01), 161
Intercabinet Cable (NTND28), 188
Intercabinet Clock Reference Cable (NT1R05), 163
Intercabinet Network Cable (NT8D73), 175
Intercabinet Network Cable (NT8D98), 181
InterGroup Module (NT8D36), 20
Intracabinet network cable (NT5K1110), 169
Intracabinet Network Cable (NT9J96), 182
Intracabinet Network Cable (NT9J97), 183
Intracabinet Network Cable (NT9J98), 183
Intracabinet Network Cable (NT9J99), 183
I/O Panel (P0715058), 202
I/O Processor/Core Multi Drive Unit (NT5D20), 40
IOP to IOP SCSI Cable (NTND13), 187
Ireland
Generic Central Office Trunk Card (NTCK16), 124
ISDN Network Termination Unit (NTBX80AA), 122
ISDN Signaling Processor (NT6D73), 44
Italy
Central Office Trunk Card (NTCK18AA), 125
Direct Inward Dial Trunk Card (NTCK22AA), 126
E&M Tie Trunk Card (NT5K83GA), 98

## K

Korea
Generic Central Office Trunk Card (NTCK16), 124
Kuwait
Generic Central Office Trunk Card (NTCK16), 124

## L

Lebanon
Generic Central Office Trunk Card (NTCK16), 124
Line side T1 Card (NT5D11AA), 59
Line side T1 Card (NT5D14AA), 59
Local Carrier Interface Card (NT7R51), 45
Local External Maintenance Cable Assembly (NT7R67DA), 169
Local Fiber Remote Multi-IPE Cable (A0634495), 159
Local Maintenance Cable Assembly (NT7R67AA), 169
Local Maintenance/Clock Cable Assembly (NT7R67CA), 171
Loop Signaling Trunk Card (QPC449), 134
Loop Signaling Trunk Card (QPC559), 139
Loop Signaling Trunk Card (QPC560), 139

## M

M1000 series digital telephones, 149
M2006 Modular Telephone, 145
M2008 Modular Telephone, 145
M2016S Modular Telephone, 145
M2216ACD-1 Modular Telephone, 145
M2616 Modular Telephone, 145
M3000 Touchphone, 147
M7310 administration terminal, 149
Maintenance Extender Cable (NTAG81BA), 184
MCDS Asynchronous Card (QPC397), 132
MDF to EEPE cable (NT5K1104), 168
Memory/Peripheral Signaling Card (NT8D19), 47
Meridian 1 Trunk Tip/Ring Cable (NT5D16AA), 165
Meridian 1 Trunk Tip/Ring Cable (NT5D17AA), 165
Meridian Communications Adapter, 151
Meridian Integrated Conference Bridge (MICB) card (NT5D51), 60

Meridian Integrated RAN (NTAG36), 120
Meridian Modular Telephones, 145
Meridian Programmable Data Adapter, 151
Message Waiting (QPC267), 131
Message Waiting (QPC494), 135
Message Waiting Line Card (QPC558), 139
Message Waiting Line Card (QPC681), 142
Mexico
    Generic Central Office Trunk Card (NTCK16), 124
MFA150 Modular Power System, 27
MFC Sender/Receiver Card (QPC327), 131
mnemonics glossary, 205
Modem Pool Line Card (QPC353), 132
Modem Pool Line Card (QPC354), 132
Modular Power Plant (MPP600), 28
Modular Power System (MFA150), 27
Module to Module Power Harness (NT7D11), 169
Module to Module Power Harness (NT8D40AM), 172
modules
    creation from UEM (Universal Equipment Module), 15
    dimensions, 16
Module-to-module power harness (NT5K1109), 169
MPP600 Modular Power Plant, 28
MSDL DCHI Interface Cable (NTND26), 188
MSDL to I/O Panel Cable (NTND27AB), 188
Multipurpose ISDN Signaling Processor (NT6D73), 44
Multipurpose Serial Data Link Card (NT6D80), 45
Music Trunk Card (QPC650), 142
Music Trunk Card (QPC651), 142

## N

NE-A18Q Connector Cable, 159
NE-A25 Connector Cable, 160
NE-A25Q Connector Cable, 160
Network Card (QPC414), 49
Network Expansion Kit (NTND33CA), 188
Network Module (NT8D35), 19
Network to Controller Cable (NT8D91), 179
Network to I/O Cable (NT8D86), 178
Network to I/O Cable (NT8D88), 179
Network to PE Cable (NT8D85), 178
Network/DTR Card (NT8D18), 47
New Zealand
    Central Office Trunk Card (NT5K18BA), 75
    DDI Trunk Card (NT5K17BA), 73
    E&M Tie Trunk Card (NT5K19BA), 76
    Flexible Analog Line Card (NT5K02LB), 67
Norway
    Central Office Trunk Card (NT5K93BA), 106
    E&M Tie Trunk Card (NT5K83CA), 93
    Flexible Analog Line Card (NT5K02MA), 68
    Flexible Analog Line Card (NT5K96MA), 107
    NT5K93AA Central Office Trunk Card, 105
    Tone Detector Card (NT5K48DA), 82
NPS50843-7L01 Interboard Faceplate Cable Harness, 161
NPS50843-7L02 Bypass Faceplate Cable Harness, 161
NPS90781-20L01 CMRC Maintenance Cable, 161
NPS90781-20L02 CMLC Maintenance Cable, 162
NT0R71 Rectifier –48V/25A, 29
NT1 (NTBX80AA), 122
NT1 Card—Basic/Enhanced (NTBX84AA/BA), 122
NT1P62 Fibre Peripheral Controller Card, 58
NT1P63 Fibre Electro-optical Interface, 36
NT1P64AA Fibre Optic Patchcord, 162
NT1P75AA Fibre Optic Patchcord, 162
NT1P76AA Fibre Superloop Network Card to I/O Panel Cable, 162
NT1P78AA Fibre Peripheral Controller to I/O Panel Cable, 162
NT1P85AA External Alarm Cable, 163
NT1R04 Clock Controller to I/O Panel Cable, 163
NT1R05 Intercabinet Clock Reference Cable, 163
NT1R20 OPS Analog Line Card, 58
NT2K91AA RS-232 Cable, 163
NT5D10 Call Processor Card, 39, 40
NT5D11AA Line side T1 Card, 59
NT5D12AA Dual DTI/PRI (DDP) Card, 41
NT5D14AA Line side T1 Card, 59

NT5D16AA Meridian 1 Trunk Tip/Ring Cable, 165
NT5D17AA Meridian 1 Trunk Tip/Ring Cable, 165
NT5D20 Core Multi Drive Unit, 40
NT5D20 I/O Processor/Core Multi Drive Unit (IOP/CMDU), 40
NT5D21 Core/Network Module, 16
NT5D50AA DBX Ribbon Cable, 165
NT5D51 Meridian Integrated Conference Bridge (MICB) card, 60
NT5D60AA XCMC CLASS Modem Card, 62
NT5D62 PCMCIA Hard Drive card, 201
NT5K02 Flexible Analog Line Card, 59
NT5K02AB Flexible Analog Line Card (Australia), 64
NT5K02DA Flexible Analog Line Card (France), 65
NT5K02JA Flexible Analog Line Card (Denmark), 66
NT5K02KA Flexible Analog Line Card (Holland), 66
NT5K02LB Flexible Analog Line Card (New Zealand), 67
NT5K02MA Flexible Analog Line Card (Norway), 68
NT5K02NB Flexible Analog Line Card (Sweden), 68
NT5K02SA Flexible Analog Line Card (Spain), 69
NT5K07 Universal Trunk Card (Hong Kong), 70
NT5K09 Quad DTMF Receiver, 72
NT5K10 Enhanced Dual Loop Peripheral Buffer, 72
NT5K11 Enhanced Existing Peripheral Equipment Module, 19
NT5K1104 MDF to EEPE cable, 168
NT5K1109 Module-to-module power harness, 169
NT5K1110 Intracabinet network cable, 169
NT5K17 Direct Dial Inward (DDI) Trunk Card (United Kingdom), 73
NT5K17BA DDI Trunk Card (New Zealand), 73
NT5K18 Flexible Central Office Trunk Card (United Kingdom), 74
NT5K18BA Central Office Trunk Card (New Zealand), 75
NT5K19 Flexible E&M Trunk Card (United Kingdom), 76
NT5K19BA E&M Tie Trunk Card (New Zealand), 76
NT5K20 Extender Tone Detector (UK), 78
NT5K21AA Extended Multifrequency Compelled Sender/Receiver (XMFC/XMFE), 78
NT5K36AA DID/DOD Trunk Card (Germany), 79
NT5K36AB DID/DOD Trunk Card (Austria/Germany), 79
NT5K48 Tone Detector Card (Global), 80
NT5K48BA Tone Detector Card (Denmark), 81
NT5K48DA Tone Detector Card (Norway), 82
NT5K50AA E&M Tie Trunk Card (France), 82
NT5K53AA Cable Assembly (UK), 166
NT5K54AA Cable Assembly (UK), 166
NT5K63AA Cable Assembly (UK), 166
NT5K64AA Cable Assembly (UK), 167
NT5K65AA Cable Assembly (UK), 167
NT5K66AA Cable Assembly (UK), 167
NT5K70AA Central Office Trunk Card (Finland/Germany), 84
NT5K70AB Central Office Trunk Card (Austria/Finland/Germany), 84
NT5K71AA Central Office Trunk Card (Germany), 85
NT5K71AB Central Office Trunk Card (Austria/Germany), 86
NT5K72AA E&M Tie Trunk Card (Austria/Finland/Germany), 87
NT5K79AA Cable Assembly (UK), 167
NT5K80AA Cable Assembly (UK), 168
NT5K81AA Cable Assembly (UK), 168
NT5K82AA Central Office Trunk Card (Switzerland), 88
NT5K82BA/CA Central Office Trunk Card (Australia), 89
NT5K82HA Central Office Trunk Card (Belgium), 90
NT5K83AA E&M Tie Trunk Card (Spain/Switzerland), 91
NT5K83BA E&M Tie Trunk Card (Denmark), 92
NT5K83CA E&M Tie Trunk Card (Norway), 93
NT5K83DA E&M Tie Trunk Card (Holland), 94

NT5K83EA E&M Tie Trunk Card (Australia), 96
NT5K83FA E&M Tie Trunk Card (Sweden), 97
NT5K83GA E&M Tie Trunk Card (Italy), 98
NT5K83HA E&M Tie Trunk Card (Belgium), 99
NT5K84AA Direct Inward Dial (DID) Trunk Card (Switzerland), 101
NT5K84BA Direct Dial Inward (DDI) Trunk Card (Australia), 102
NT5K84HA Direct Inward Dial (DID) Trunk Card (Belgium), 103
NT5K90AA Central Office Trunk Card (Denmark), 104
NT5K90BA Central Office Trunk Card (Denmark), 104
NT5K92AA Direct Inward Dial Auto Answer Circuit (DID Tester) (Austria/France/Germany/Switzerland), 105
NT5K93AA Central Office Trunk Card (Norway), 105
NT5K93BA Central Office Trunk Card (Norway), 106
NT5K96JA Flexible Analog Line Card (Denmark), 107
NT5K96KA Flexible Analog Line Card (Holland), 107
NT5K96MA Flexible Analog Line Card (Norway), 107
NT5K96NB Flexible Analog Line Card (Sweden), 107
NT5K96SA Flexible Analog Line Card (Spain), 108
NT5K99AA/BA Central Office Trunk Card (Spain), 108
NT6D40 PE Power Supply DC, 29
NT6D41 CE Power Supply DC, 29
NT6D42 Ringing Generator DC, 29
NT6D43 CE/PE Power Supply DC, 30
NT6D54 Field Wiring Kit, 169
NT6D65 Core to Network Interface Card, 43
NT6D70BA S/T Interface Line Card (SILC), 109
NT6D71 U Interface Line Card (UILC), 110
NT6D72 Basic Rate Concentrator Signaling Card, 111
NT6D73 Multipurpose ISDN Signaling Processor, 44
NT6D73 U Interface Line Card, 111
NT6D80 Multipurpose Serial Data Link Card, 45
NT7D00AA top cap, 23
NT7D00BA top cap, 23
NT7D0902 Rear Mount Conduit Kit, 199, 202
NT7D09CA pedestal, 23
NT7D11 Module to Module Power Harness, 169
NT7D16 Data Access Card, 111
NT7D67CB Power Distribution Unit DC, 30
NT7D68CA Remote Carrier/Alarm Cable Ass'y, 170
NT7D68CA T1 Remote Carrier/Alarm Cable Assembly to Small Cabinet, 170
NT7D68DA Remote Maint. Cable Ass'y, 170
NT7D68DA T1 Remote Maintenance Cable Assembly to Small Cabinet, 170
NT7D68EA Coaxial Interface Adapter Cable, 170
NT7D68EA E1 Remote Carrier/Alarm Cable Assembly, 170
NT7D69AA Extension Local Carrier Cable Assembly, 170
NT7D69BA Extension Local Maintenance Cable Assembly, 170
NT7D89 CP to I/O Panel RS-232 Cable, 169
NT7D90 CP to I/O Panel Ethernet Cable, 171
NT7R51 Local Carrier Interface Card, 45
NT7R52 Remote Carrier Interface Card, 111
NT7R62AA Bracket-Small Cabinet I/O Ass'y, 202
NT7R67AA Local Maintenance Cable Assembly, 169
NT7R67BA T1 Local Carrier/Monitor Cable Assembly, 171
NT7R67CA Local Maintenance/Clock Cable Assembly, 171
NT7R67DA Local External Maintenance Cable Assembly, 169
NT7R67EA E1 Local Maintenance Cable Assembly, 171
NT7R68AA T1 Remote Carrier/Alarm Cable Assembly, 169

NT7R68BA Remote Maintenance Cable Assembly, 170
NT8B80AB-03 Remote Access Device, 202
NT8D01 Controller Card, 112
NT8D01AC Controller-4 Card, 112
NT8D01AD Controller-2 Card, 113
NT8D02 Digital Line Card, 113
NT8D03 Analog Line Card, 114
NT8D04 Superloop Network Card, 46
NT8D06 PE Power Supply AC, 30
NT8D09 Analog Message Waiting Line Card, 114
NT8D14 Universal Trunk Card, 115
NT8D15 E&M Trunk Card, 116
NT8D16 Digitone Receiver Card, 117
NT8D17 Conference/TDS Card, 46
NT8D18 Network/DTR Card, 47
NT8D19 Memory/Peripheral Signaling Card, 47
NT8D21 Ringing Generator AC, 30
NT8D22 System Monitor, 31
NT8D27BB pedestal, 23
NT8D29 CE Power Supply AC, 31
NT8D35 Network Module, 19
NT8D36 InterGroup Module, 20
NT8D37 Intelligent Peripheral Equipment Module, 20
NT8D39AA Power Failure Transfer Unit, 31
NT8D40AA AC Power Cord, 170
NT8D40AM Module to Module Power Harness, 172
NT8D40BK System Monitor Trip Cable, 172
NT8D41BA Quad Density Serial Data Interface, 47
NT8D46AA System Monitor Column Cable, 172
NT8D46AC Thermostat Harness, 31, 172
NT8D46AD System Monitor to SDI Cable, 172
NT8D46AG System Monitor to SDI Paddleboard Cable, 172
NT8D46AH System Monitor to MDF Cable, 172
NT8D46AJ System Monitor to UPS (Best) Cable, 172
NT8D46AL System Monitor Serial Link Cable, 173
NT8D46AM Air Probe Harness AC, 32, 173
NT8D46AP System Monitor Serial Link Cable, 173
NT8D46AQ System Monitor to UPS (Exide) Cable, 173
NT8D46AS System Monitor Inter-CPU Cable, 173
NT8D46AT System Monitor to QBL15 Cable, 173
NT8D46AU System Monitor to UPS (Alpha) Cable, 174
NT8D46AV System Monitor to Power Cabinet Cable, 174
NT8D46AW System Monitor to QBL12 Cable, 174
NT8D46BH System Monitor to MDF Cable, 174
NT8D46BV System Monitor to Power Cabinet Cable, 174
NT8D46CC System Monitor to SDI Paddleboard Cable, 174
NT8D46CV System Monitor to Power Cabinet Cable, 175
NT8D46DC Air Probe Harness DC, 32, 175
NT8D47 Remote Peripheral Equipment Module, 21
NT8D49 Column Spacer Kit, 21
NT8D52AB Pedestal Blower Unit AC, 32
NT8D52DD Pedestal Blower Unit DC, 32
NT8D53AB Power Distribution Unit AC, 33
NT8D53AD Power Distribution Unit, 33
NT8D55 Front/Rear Cover, 21
NT8D56AA CE Module Power Distribution Unit, 33
NT8D56AC CE/PE Module Power Distribution Unit, 33
NT8D57AA PE Module Power Distribution Unit, 34
NT8D62AA Thermal Sensor Harness, 34
NT8D63 Overhead Cable Tray Kit, 202
NT8D68 Floppy Disk Unit, 48
NT8D72 Primary Rate Interface 2 Mbps, 48
NT8D73 Intercabinet Network Cable, 175
NT8D74 Clock Controller to Junctor Cable, 175
NT8D75 Clock Controller to Clock Controller Cable, 175
NT8D79 PRI/DTI to Clock Controller Cable, 176
NT8D80 CPU Interface Cable, 176
NT8D81 Tip and Ring Cable, 176
NT8D82 SDI to I/O Cable, 177
NT8D83 PRI/DTI to I/O Cable, 177

NT8D84AA SDI Paddleboard to I/O Cable, 177
NT8D84BA System Monitor to I/O Cable, 177
NT8D85 Network to PE Cable, 178
NT8D86 Network to I/O Cable, 178
NT8D87 Conference/TDS to Music Trunk Cable, 179
NT8D88 Network to I/O Cable, 179
NT8D90AF SDI Multiple-Port Cable, 179
NT8D91 Network to Controller Cable, 179
NT8D92AB Controller to I/O Cable, 180
NT8D93 SDI Paddleboard I/O to DTE/DCE Cable, 180
NT8D95 SDI I/O to DTE/DCE Cable, 180
NT8D96AB SDI Multiport Cable, 181
NT8D97AX PRI/DTI I/O to MDF Cable, 181
NT8D98 Intercabinet Network Cable, 181
NT8D99 CPU to Network Cable, 182
NT9C14AA CO/FX/WATS Trunk Card, 117
NT9D19 Call Processor Card, 48
NT9D47 EMSI to SMDU Data Cable, 182
NT9D66 EMSI to SMDU Power Cable, 182
NT9D89 EMSI to MDU Data Cable, 182
NT9J93AD PRI/DTI Echo Canceler to I/O Cable, 182
NT9J94AB RPE to I/O Cable, 182
NT9J96 Intracabinet Network Cable, 182
NT9J97 Intracabinet Network Cable, 183
NT9J98 Intracabinet Network Cable, 183
NT9J99 Intracabinet Network Cable, 183
NTAG01AA Cable Assembly (UK), 184
NTAG02AA Cable Assembly (UK), 184
NTAG03AA Central Office Trunk Card (Holland), 118
NTAG04AA Central Office/Direct Inward Dial Trunk Card (Holland), 119
NTAG26 Enhanced Multi-frequency Receiver, 120
NTAG36 Meridian Integrated RAN (MIRAN), 120
NTAG81AA Audio Cable, 184
NTAG81BA Maintenance Extender Cable, 184
NTAK1204 Carrier Remote Inter-cabinet Cable, 185
NTAK410 Carrier Remote DC Power Cable, 185
NTBX80AA ISDN Network Termination Unit (NT1), 122
NTBX84AA/BA Rack-mount NT1 Card—Basic/Enhanced, 122
NTCG03 Reference Clock Cable, 185
NTCK16 Generic Central Office Trunk Card, 123
NTCK18AA Central Office Trunk Card (Italy), 125
NTCK22AA Direct Inward Dial Trunk Card (Italy), 126
NTCK46 External DCHI Cable, 186
NTCK80 External MSDL Cable, 186, 187
NTCK91 COMPANION Meridian 1 Radio Card, 127
NTCK93 COMPANION Meridian 1 Line Card, 62, 127, 128
NTND11 CP to CP Cable, 185, 187
NTND13 IOP to IOP SCSI Cable, 187
NTND26 MSDL DCHI Interface Cable, 188
NTND27AB MSDL to I/O Panel Cable, 188
NTND28 Intercabinet Cable, 188
NTND33 Core Module Upgrade Kit, 188
NTND33CA Network Expansion Kit, 188
NTND37 Dual SDI Cable, 189
NTND94 CNI to I/O Panel Cable, 189
NTND95 3PE to Connector Housing Cable, 189
NTOR72 Rectifier –48V/25A, 29
Nullmodem
A0601396, 198
A0601397, 198

## O

OPS Analog Interface Line Card (NT1R20), 58
OPS Analog Line Card (NT1R20), 58
Overhead Cable Tray Kit (NT8D63), 202
overlay template
attendant administration, 150

## P

P0704007 Superloop Adapter Plate, 190, 202
P0715058 Universal I/O Panel, 190, 202
P0741489 Extraction Tool, 202
Parallel Message Waiting Line Card (QPC681), 142
PCMCIA Flash Card, 3MB (A0660403), 200

PCMCIA Flash Card, 40MB (A0633651), 199
PCMCIA Hard Drive card (NT5D62), 201
PE Cable Assembly (QCAD313), 195
PE Module Power Distribution Unit (NT8D57AA), 34
PE Power Supply AC (NT8D06), 30
PE Power Supply DC (NT6D40), 29
Pedestal Blower Unit AC (NT8D52AB), 32
Pedestal Blower Unit DC (NT8D52DD), 32
pedestals and components, 23
peripheral equipment cards, 53
Peripheral Signaling Card (QPC43), 49
Personal Computer Interface Card (QPC512), 136
Power Adapter Cable (QCAD306), 195
Power Connector Cable (QCAD274A), 194
Power Connector Cable (QCAD275A), 194
Power Connector Cable (QCAD278), 194
Power Distribution Box (QBL14), 34
Power Distribution Box (QBL15), 34
Power Distribution Unit (NT8D53AD), 33
Power Distribution Unit (NT8D56AA), 33
Power Distribution Unit (NT8D56AC), 33
Power Distribution Unit (NT8D57AA), 34
Power Distribution Unit AC (NT8D53AB), 33
Power Distribution Unit DC (NT7D67CB), 30
power equipment, 25
Power Failure Transfer Unit (A0355200), 27
Power Failure Transfer Unit (NT8D39AA), 31
Power Supply –48V (A0367916), 27
Power Supply AC (NT8D06), 30
Power Supply AC (NT8D29), 31
Power Supply DC (NT6D40), 29
Power Supply DC (NT6D41), 29
Power Supply DC (NT6D43), 30
PRI to DCHI Cable (QCAD328), 195
PRI/DTI Echo Canceler to I/O Cable (NT9J93AD), 182
PRI/DTI I/O to MDF Cable (NT8D97AX), 181
PRI/DTI I/O to MDF Cable (QCAD133), 194
PRI/DTI to Clock Controller Cable (NT8D79), 176
PRI/DTI to I/O Cable (NT8D83), 177
Primary Rate Interface 2 Mbps (NT8D72), 48
Primary Rate Interface Card (QPC720), 51
Pulsed E&M Trunk Card (QPC390), 132
Pulsed E&M Trunk Card (QPC391), 132

## Q

QBL12 Battery Distribution Box, 34
QBL14 Power Distribution Box, 34
QBL15 Power Distribution Box, 34
QCA328AD Connector Cable, 191
QCA55 CE Cabinet, 23
QCAD36A Terminal Connector Cable, 191
QCAD37A Terminal Connector Cable, 191
QCAD38A Connector Cable, 191
QCAD42A Connector Cable, 191
QCAD110A Connector Cable, 192
QCAD115A Connector Cable, 192
QCAD116A Connector Cable, 192
QCAD117A Connector Cable, 192
QCAD118A Connector Cable, 192
QCAD119A Connector Cable, 192
QCAD120A Connector Cable, 192
QCAD121A Connector Cable, 192
QCAD122A Connector Cable, 193
QCAD123A Connector Cable, 193
QCAD124A Connector Cable, 193
QCAD125A Connector Cable, 193
QCAD128 Connector Cable, 193
QCAD129A Connector Cable, 194
QCAD130A Connector Cable, 194
QCAD133 PRI/DTI I/O to MDF Cable, 194
QCAD172A Connector Cable, 194
QCAD274A AC Power Cord, 194
QCAD274A Power Connector Cable, 194
QCAD275A Power Connector Cable, 194
QCAD278 Power Connector Cable, 194
QCAD281 Connector Cable, 194
QCAD282 Connector Cable, 194
QCAD306 Power Adapter Cable, 195
QCAD313 PE Cable Assembly, 195
QCAD328 PRI to DCHI Cable, 195
QCAD332/333 3-Port SDI Cables, 195
QCAD40A Connector Cable, 191
QCB12/13 Connector Cable, 195
QCB6 Tape Unit Connector Cable, 195
QMM42 Security Data Cartridge, 49

QMT11 Asynchronous/Synchronous Interface Module, 149
QMT12 Add-on Data Module, 150
QPC43 Peripheral Signaling Card, 49
QPC45 Serial Data Interface, 49
QPC60 500/2500 Line Card, 130
QPC71 E&M/DX/Paging Trunk Card, 130
QPC250 Release Link Trunk Card, 130
QPC267 500/2500 Line Card (Message Waiting), 131
QPC267 500/2500 Message Waiting Line Card, 131
QPC297 Attendant Console Monitor Card, 131
QPC311 Data Line Card, 131
QPC327 MFC Sender/Receiver Card, 131
QPC341 Data Line Card, 131
QPC342 Attendant Console Monitor Card, 131
QPC343 Ground Button Recall Line Card, 131
QPC343 Modem Pool Line Card, 132
QPC353 Modem Pool Line Card, 132
QPC390 Pulsed E&M Trunk Card, 132
QPC391 Pulsed E&M Trunk Card, 132
QPC397 MCDS Asynchronous Card, 132
QPC414 Network Card, 49
QPC422 Tone Detector Card, 132
QPC430 Asynchronous Interface Line Card, 133
QPC432 4-Port Data Line Card, 133
QPC441 Three-Port Extender Card, 50
QPC449 Loop Signaling Trunk Card, 134
QPC450 CO/FX/WATS Trunk Card, 134
QPC451 SL-1 Set Line Card, 135
QPC452 Basic 500/2500 Line Card, 135
QPC471 Clock Controller Card, 50
QPC494 500/2500 Line Card (Message Waiting), 135
QPC494 500/2500 Message Waiting Line Card, 135
QPC512 Personal Computer Interface Card, 136
QPC520 SL-1 Line Card, 136
QPC521 500/2500 Line Card, 137
QPC525 CO/FX/WATS Trunk Card with PPM, 137
QPC526 CO/FX/WATS Trunk Card with PPM, 137
QPC527 CO/FX/WATS Trunk Card, 137
QPC528 CO/FX/WATS Trunk Card, 138
QPC532 Ground Button Recall Line Card, 138
QPC540 Dial Tone Detector, 138
QPC550 DID Trunk Card, 138
QPC551 Radio Paging Trunk Card, 139
QPC558 Message Waiting Line Card, 139
QPC559 Loop Signaling Trunk Card, 139
QPC560 Loop Signaling Trunk Card, 139
QPC574 Digitone Receiver, 139
QPC577 Digitone Receiver Daughterboard (µ-Law), 140
QPC578 Integrated Services Digital Line Card, 140
QPC594 500/2500 Line Card, 140
QPC595 Digitone Receiver, 141
QPC596 Digitone Receiver Daughterboard (A-Law), 141
QPC650 Music Trunk Card (µ-Law), 142
QPC651 Music Trunk Card (A-Law), 142
QPC659 Dual Loop Peripheral Buffer Card, 142
QPC681 Parallel Message Waiting Line Card, 142
QPC720 Primary Rate Interface Card, 51
QPC782 Read-Only Memory, 52
QPC841 Four-Port Serial Data Interface Card, 52
QPC915 Digital Trunk Interface Card, 52
Quad Density Serial Data Interface (NT8D41BA), 47
Quad DTMF Receiver (NT5K09), 72

## R

Rack-mount NT1 Card—Basic/Enhanced (NTBX84AA/BA), 122
Radio Paging Trunk Card (QPC551), 139
Read-Only Memory (QPC782), 52
Rear Mount Conduit Kit (NT7D0902), 199, 202
Rectifier
  –48V/25A (NT0R71), 29
  –48V/25A (NT0R72), 29
Reference Clock Cable (NTCG03), 185
references
  additional documentation, 11, 14, 15
Release Link Trunk Card (QPC250), 130
Remote Access Device (NT8B80AB-03), 202
Remote Carrier Interface Card (NT7R52), 111
Remote Carrier/Alarm Cable Ass'y (NT7D68CA), 170

Remote Fiber Remote Multi-IPE Cable (A0634496), 159
Remote Maint. Cable Ass'y (NT7D68DA), 170
Remote Maintenance Cable Assembly (NT7R68BA), 170
Remote Peripheral Equipment Module (NT8D47), 21
Ringing Generator AC (NT8D21), 30
Ringing Generator DC (NT6D42), 29
ROM Card (QPC782), 52
RPE to I/O Cable (NT9J94AB), 182
RS-232 Cable (NT2K91AA), 163

## S

SDI Cables (QCAD332/333), 195
SDI I/O to DTE/DCE Cable (NT8D95), 180
SDI Multiple-Port Cable (NT8D90AF), 179
SDI Multiport Cable (NT8D96AB), 181
SDI Paddleboard I/O to DTE/DCE Cable (NT8D93), 180
SDI Paddleboard to I/O Cable (NT8D84AA), 177
SDI to I/O Cable (NT8D82), 177
Security Data Cartridge (QMM42), 49
seismic bracing kit, 204
Serial Data Interface (QPC45), 49
Serial Data Interface Card (QPC841), 52
Serial Data Link Card (NT6D80), 45
Shaye Handset (C3020), 147
shelves, 15
SILC
  S/T Interface Line Card (NT6D70BA), 109
Singapore
  Generic Central Office Trunk Card (NTCK16), 124
SL-1 Line Card (QPC520), 136
SL-1 Set Line Card (QPC451), 135
Spain
  Central Office Trunk Card (NT5K99AA/BA), 108
  E&M Tie Trunk Card (NT5K83AA), 91
  Flexible Analog Line Card (NT5K02SA), 69
  Flexible Analog Line Card (NT5K96SA), 108
S/T Interface Line Card (NT6D70BA), 109
station equipment, 143
Superloop Adapter Plate (P0704007), 190, 202
Superloop Network Card (NT8D04), 46
Sweden
  E&M Tie Trunk Card (NT5K83FA), 97
  Flexible Analog Line Card (NT5K02NB), 68
  Flexible Analog Line Card (NT5K96NB), 107
Switzerland
  Central Office Trunk Card (NT5K71AB), 88
  Direct Inward Dial (DID) Trunk Card (NT5K84AA), 101
  Direct Inward Dial Auto Answer Circuit (NT5K92AA), 105
  E&M Tie Trunk Card (NT5K83AA), 91
system cabinets and shelves, 15
System Monitor (NT8D22), 31
System Monitor Column Cable (NT8D46AA), 172
System Monitor Inter-CPU Cable (NT8D46AS), 173
System Monitor Serial Link Cable (NT8D46AL), 173
System Monitor Serial Link Cable (NT8D46AP), 173
System Monitor to I/O Cable (NT8D84BA), 177
System Monitor to MDF Cable (NT8D46AH), 172
System Monitor to MDF Cable (NT8D46BH), 174
System Monitor to Power Cabinet Cable (NT8D46AV), 174
System Monitor to Power Cabinet Cable (NT8D46BV), 174
System Monitor to Power Cabinet Cable (NT8D46CV), 175
System Monitor to QBL12 Cable (NT8D46AW), 174
System Monitor to QBL15 Cable (NT8D46AT), 173
System Monitor to SDI Cable (NT8D46AD), 172
System Monitor to SDI Paddleboard Cable (NT8D46AG), 172
System Monitor to SDI Paddleboard Cable (NT8D46CC), 174
System Monitor to UPS (Alpha) Cable (NT8D46AU), 174

System Monitor to UPS (Best) Cable (NT8D46AJ), 172
System Monitor to UPS (Exide) Cable (NT8D46AQ), 173
System Monitor Trip Cable (NT8D40BK), 172

## T

T1 Local Carrier/Monitor Cable Assembly (NT7R67BA), 171
T1 Remote Carrier/Alarm Cable Assembly (NT7R68AA), 169
T1 Remote Carrier/Alarm Cable Assembly to Small Cabinet (NT7D68CA), 170
T1 Remote Maintenance Cable Assembly to Small Cabinet (NT7D68DA), 170
Taiwan
    Generic Central Office Trunk Card (NTCK16), 124
Tape Unit Connector Cable (QCB6), 195
telephones, 143
    M1000 series digital, 149
    M3000 Touchphone, 147
    Meridian Modular, 145
Terminal Connector Cable (QCAD36A), 191
Terminal Connector Cable (QCAD37A), 191
Thailand
    Generic Central Office Trunk Card (NTCK16), 124
Thermal Sensor Harness (NT8D62AA), 34
Thermostat Harness (NT8D46AC), 31, 172
Three-Port Extender Card (QPC441), 50
Tip and Ring Cable (NT8D81), 176
Tone Detector Card (NT5K48), 80
Tone Detector Card (NT5K48BA), 81
Tone Detector Card (NT5K48DA), 82
Tone Detector Card (QPC422), 132
top caps for columns, 23
Tortola
    Generic Central Office Trunk Card (NTCK16), 124
Touchphone (M3000), 147
Trunk Card (QPC71), 130
Turkey
    Generic Central Office Trunk Card (NTCK16), 124

## U

U Interface Line Card (NT6D71), 110
U Interface Line Card (NT6D73), 111
UDS FastTalk v.32/42b (A0381391), 198
UEM (Universal Equipment Module), 15
    side panels for, 23
UILC
    U Interface Line Card (NT6D71), 110
United Kingdom
    Cable Assembly (NT5K53AA0, 166
    Cable Assembly (NT5K54AA), 166
    Cable Assembly (NT5K63AA), 166
    Cable Assembly (NT5K64AA), 167
    Cable Assembly (NT5K65AA), 167
    Cable Assembly (NT5K66AA), 167
    Cable Assembly (NT5K79AA), 167
    Cable Assembly (NT5K80AA), 168
    Cable Assembly (NT5K81AA), 168
    Cable Assembly (NTAG01AA), 184
    Cable Assembly (NTAG02AA), 184
    Direct Dial Inward (DDI) Trunk Card (NT5K17), 73
    Extender Tone Detector (NT5K20), 78
    Flexible Central Office Trunk Card (NT5K18), 74
    Flexible E&M Trunk Card (NT5K19), 76
Universal I/O Panel (P0715058), 190, 202
Universal Trunk Card (NT5K07), 70
Universal Trunk Card (NT8D14), 115

## V

Venezuela
    Generic Central Office Trunk Card (NTCK16), 124

## X

X11 software
    related documentation, 14
XMFC/XMFE

NT5K21AA Extended Multifrequency
Compelled Sender/Receiver, 78

Meridian 1

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